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THOREAU'S FACT BOOK

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ANNOTATED AND INDEXED

By

KENNETH WALTER CAMERON

Trinity College, Hartford

VOLUME

I



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IN MEMORY OF
ARTHUR CHRISTY
THE FIRST SCHOLAR TO NOTE THE
IMPORTANCE OF
THIS FACT BOOK AND VALIANTLY TO
ATTEMPT AN EDITION



Drawing of Thoreau's birthplace
'He was born in the easternmost of the upper chambers'
From a contemporary sketch

PREFACE

Over a period of nearly twenty years, Professor Arthur Christy, with the help of graduate work-teams, prepared the draft of the "Fact Book" which today survives in the Columbia University Library. Though it appears to be ready for the press, a careful examiner will find it only a tentative draft, with which, I am certain, Professor Christy himself would never have been satisfied. It is filled with misreadings of the Thoreau manuscript such as graduate students might easily make. Whole paragraphs of particularly difficult penmanship have been silently omitted from the transcription. Liberties have been taken with Thoreau's headings. And no attempt has been made fully to identify the sources beyond a listing of titles and probable editions used. The books Thoreau read and excerpted have not been examined for the exact locations of the "facts." This inexact and incomplete transcript, therefore, along with a number of other unfinished enterprises in the Thoreau field—some of them gigantic in scope—was rendered abortive by Dr. Christy's death and the closing of his workshop.

I regret that I have not been able to enter into his labors and complete what he and his team began—much as I should have liked, under different circumstances, assisting into print one of his posthumous works. I have had to start at the beginning and employ other tools than were available to him and to his students in the 1920's and 1930's. I mention his labors with respect, however, because he was the first Thoreau scholar to lay out a large research plan, the "Fact Book" being just one of many segments. Because I have found most useful the solid scholarship that he managed to see into print during his lifetime, I here record my deep appreciation, hoping that I am herein fulfilling a part of his large design—to open new research areas for workers in the American Renaissance.

The first distinguishing feature of the present edition is the facsimile of Thoreau's manuscript. During the past decade we have discovered that no transcript of a Thoreau notebook is permanently valuable. We must go back from it repeatedly to the holograph text for new readings, new interpretations, and new significances in spacings and groupings. I have, accordingly, made the facsimile and its pagination, in volume one, the basis for all transcription and commentary in volume two. If any should question my reading at any point, he may quickly turn to the facsimile and study it with the best tools available to him.

The next feature is the handling of Thoreau's sources pictorially by interweaving transcriptions with reproductions from many of the pages which he excerpted. This plan has provided a useful context for large parts of the "Fact Book" and has helpfully revealed the nature of the sources which he frequently and retentively read from cover to cover, even though he recorded but a few "facts" from them.

The final feature—indispensable, I believe—is the detailed index, which links the facsimile, the transcription, and the commentary. The researcher will find in it a "brave new world" of possibilities; the editor of new Thoreau scripture will welcome a great time-saver; and the seeker after a dissertation subject may quickly reach his journey's end.

I am grateful to Miss Elizabeth C. Ford, former curator, and to Miss Eleanor L. Nicholes, present curator, of the Harry Elkins Widener Memorial Library at Harvard University for permission to publish the "Fact Book" and for patience during a research which has proved more difficult and time-consuming than I had at the start (in 1958) fully anticipated. I owe special thanks to Mrs. Mary Dobbie, of New York City, to Professor Lewis Leary, of Columbia University, and to Professor William A. Jackson, of the Houghton Library at Harvard, for assisting in the transfer of permission to edit. Dr. Odell Shepard encouraged the enterprise by stressing its importance. Since Thoreau found most of his books in the Harvard College Library, I have necessarily spent profitable hours in its stacks, finding its facilities indispensable and its hospitality unrivalled.

New Year's Day, 1965.

K. W. C.

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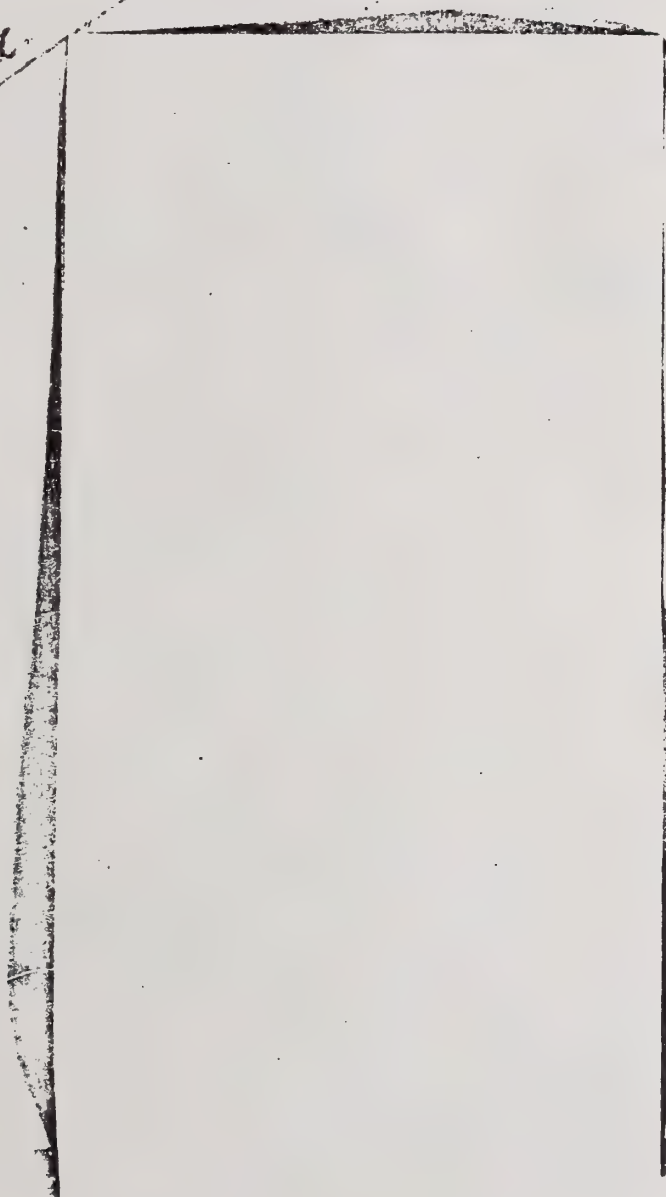
51/11/16

in

One of Thoreau's "Fact-books"

358 pages

C. C. H. present.



Henry D. Thoreau's notebook, containing extracts
mainly concerning Natural History. I purchased this
book, together with "Walden" and practically all the
other manuscripts of Thoreau, from W. E. H. Russell
of Worcester, Mass. He had inherited the Thoreau
Mss. from Blake, who in turn had inherited them
from Thoreau's sister. The Mss. were in two large wooden
boxes which Thoreau himself had made for them,
and from one of these boxes, left at Thoreau's
desk, I took this volume.

Frederic P. Azilman.

1853-1858?
See Azilman's account (1883)
and "Walden" (1883-6)

x Halcyon Days

"By some [of the ancients] it was superstitiously supposed that this bird exercised a controlling influence over the winds and waves - hence the origin of the antique name of "Halcyon" and of those days of unusual stillness, which were practically termed "Halcyon days." On these days the Kingfishers are particularly industrious, for the reason probably that the purity of the atmosphere and the lightness of evaporation from the surface of the water, promise extraordinary success in their piscatory operations."

Warren's "Para."

x A Pouffalo Creek. in Georgia

"The earth, from the superficial to an unknown depth, is an almost white or cinereous colored tenacious fetid clay, which all kinds of cattle take into great care, pursuing the delicious vein. This is the common opinion of the inhabitants, that this clay is impregnated with saline vapors, arising from fossil salts deep in the earth; but I could discover nothing saline in its taste, but I imagined an insipid sweetness. Horned cattle, horses, and deer, are immoderately

found out, inasmuch, that their excrement, which almost totally covers the earth to some distance round this place, appears to be perfect clay; which when dried by the sun and air, is almost as hard as brick. "Bartram's Travels.

Black oaks

Bartram, describing a magnificent forest near ^{as} Wrightborough Georgia, says that many of the black oaks [*Querc. tinctoria*] measured eight, nine, ten, and eleven feet diameter four feet above the ground, as we measured several that were above thirty feet girth, and from hence they stand perfectly straight with a gradual taper, forty or fifty feet to the limbs; but below five or six feet, these trunks would measure a third more in circumference, on account of the projecting yambs, or supports, which are more or less, according to the number of horizontal roots that they arise from.

* Morning Thoughts.

"I [one of Woodworth's friends] heard him once make the remark that it would be a good habit to watch closely the first involuntary thoughts upon waking

in the morning, as indications of the
real current of the moral being."

Memoirs of Wordsworth.

And again: "This also, — that our first
waking thoughts are often our finest
and truest; and that dreams are some-
times eminent and wise; which phenomena
are incompatible with the idea that we
die down like grass into our organic
roots at night, and are resuscitated as
from a winter in the morning. And it must
again be adverted to that this would
not suit the Grand Economist; for
after nature has ascended to one
plateau of life, represented by a day,
she will much not tumble down into the
valley because not needed, but will pitch
her tent, & make her couch upon that
elevation." Milkinson. He wishes to prove
that the cerebellum is the brain of the body,
and during sleep of the cerebrium also.

Rhus Glabra

"The branches boiled with the berries of-
ford a black ink like tincture. The boys
eat the berries, there being no danger
of falling sick after the report, but they
are very sour." Kalm's Travels. at
Philadelphia.

The Red Weevil.

Kalm says that the pears about Albany were not infected. "At my departure from America, I took some sweet pears with me in a paper, and they were at that time quite fresh and green. But on opening the paper after my arrival at Stockholm, on August the 1st 1751; I found all the pears hollow, and the head of an insect peeping out of each. Some of these insects even crept out, in order to try the weather of that new climate, but I made haste to shut the paper again, in order to prevent the spreading of this noxious insect. I own, that when I first perceived them, I was more frightened than I should have been at the sight of a viper. For I at once had a full view of the terrible damage, which my dear country would have suffered, if only two or three of these noxious insects had escaped me. The hostility of many families, and even the inhabitants of whole provinces, would have had reason to detest me as the cause of so great a calamity." *Bruchus piri* Lin.

Yet Linnaeus describes them as in the South of Europe.

Blues Radicans

"This sap is so sharp that the letters & characters made upon linen with it, cannot be got out again, but grow blacker the more the cloth is washed. — If you write with it on paper, the letters never go out, but grow blacker from time to time." Kalin

Sign of Rain.

"The reason they gave for this conjecture, was, that this morning at our riding, from their windows they had seen everything very plainly on the other side of the river, so that it appeared much nearer than usual, and that this commonly forebodes rain". Kalin at Philad.

Pigeons

"The Townspeople that a great number of them, and gather in some, in which we found a great quantity of the seeds of the elm, which evidently demonstrated the care of Providence in supplying them with food; for in May the seeds of the red maple, which abound here, are ripe, and drop from the trees, and are eaten by the pigeons during that time: afterwards, the seeds of the elm ripen, which then become their food, till other seeds ripen for them." Kalin between Fort Anne & St. Frederic, on his way to Canada.

Falling Trees in the Forest.

"Almost every night, we heard some trees crackle & fall, whilst we lay here in the wood, though the air was so calm that not a leaf stirred. The reason of this breaking I am totally unacquainted with. Perhaps the dew loosens the roots of trees at night; or, perhaps there are too many branches on one side of the tree, so many, be that the above-mentioned wild pigeons settle in such quantities on one tree as to weigh it down; or perhaps the tree begins to bend more & more to one side, from its center of gravity, making the weight always greater for the roots to support, till it comes to the point when it can no longer be kept upright, which may as well happen in the middle of a calm night as at any other time. When the wind blows hard it is reckoned very dangerous to sleep or walk in the woods, on account of the many trees which fall in them; and even when it is very calm, there is some danger in passing under very great old trees." Kalm, same place as last.

Kalm astray on ~~the~~ Woodcock

"We had rowed past all the afternoon, in order to get forward; and we thought that we were upon the true road, but found ourselves greatly mistaken: for towards night we observed, that the

reeds in the river bent towards us, which was a mark that the river likewise flowed towards us; whereas if we had been on the true river, it should have gone with us. Kalin at same place.

Asclepias Syriaca

Called by the Canadians Le Potorier. The French in Canada nevertheless use its tender shoots in spring, preparing them like asparagus; and the use of them is not attended with any bad consequences, as the tender shoots have not yet had time to make up anything poisonous. Its flowers are very odoriferous, and, when in season, they fill the woods with their fragrant exhalations and make it agreeable to travel in them; especially in the evening. The French in Canada make a sugar of the flowers, which for that purpose are gathered in the morning, when they are covered all over with dew. This dew is expressed, and by boiling yields a very good brown, palatable sugar. The pods of this plant when ripe contain a kind of wool, which enclose the seed, and resembles cotton, from whence the plant has got its French name. The poor collect it, and fill their beds, especially their childrens, with it instead of feathers. Kalin.

Ginseng (*Panax Quinquefolium*)

"The Mantchours - Tartars call it Orketa, that is the most noble, or the queen of ^{herb} plants" — "The Froquois, or Five (six) Nations, call the Ginseng roots Garenngtaging, which it is said signifies a child, the roots bearing a faint resemblance to it" — "The trade which is carried on with it here [at Quebec] is very brisk." — "In the summer of 1748 a pound of Ginseng was sold for 6 Francs, or Livres, at Quebec; but its common price here is one hundred Sols, or five Livres." — "The roots were — collected in Canada with all possible diligence; The Indians especially travelled about the country in order to collect as much as they could together, and to sell it to the merchants at Montreal. The Indians in the neighborhood of this town (Quebec) were likewise so much taken up with this business, that the French farmers were not able during that time to hire a single Indian, as they commonly do, to help them in the harvest." —
 An unusual demand that year.
 Kalm

Plants used for food

"The sea-side plantain [*Plantago maritima*]

is very frequent on the shore. The French boil its-leaves in a broth on their sea-voyages, or eat them as a salad. It may likewise be pickled like rampkins.

"Gale, or sweet willow, [*Myrica gale*] is likewise abundant here. The French call it *Saurier*, and some *Poirrier*. They beat the leaves into their broth, & give it a pleasant taste."

But what does a Frenchman not put into his broth?

"The sea rocket [*Burnias cakile*] is likewise, not uncommon. Its root is pounded mixed with flossga, and eaten here, when there is a scarcity of bread."

"The women (Canadian) dye their woolen yarn yellow with seed of gale."

Kalm at Cap aux Ours
last entrance off Montmorenci.

Man

"he appears to be the only living creature whose sense of smell is sufficiently delicate to be affected by unpleasant odors."

Cuvier's Animal Kingdom
Trans. by Ed. Griffith & others

Grotesques, Stages &c.

"My performances, indeed, were more
 finer and more durable than the Turk-
 ish, for several reasons: one was, that
 I made a much deeper incision in the
 steel [of his dagger] than is gener-
 ally practised in Turkish works; the
 other that their foliage are nothing
 else but chicory leaves, with some
 few flowers of Echites: These have per-
 haps, some grace, but they do not
 continue to please like our foliage.
 In Italy there is a variety of taste,
 and we cut foliage in many dif-
 ferent forms. The Lombards make
 the most beautiful wreaths repre-
 senting ivy & vine leaves, and others of
 the same sort, with agreeable twistings
 highly ^{pleasing} agreeable to the eye. The Romans
 and Tuscans have a much better no-
 tion in this respect, for they represent
 Acanthus leaves, with all their pectus
 & flowers, winding in a variety of forms;
 and amongst these leaves they insert
 birds & animals of several sorts with
 great ingenuity and elegance in the
 arrangement. They likewise have re-
 course occasionally to wild flowers,
 such as those called lions' mouths,
 from their peculiar shape, accom-
 panied by other fine inventions of

the imagination, which are termed grotesques & the ignorant. These foliages have received ~~that~~ name from the moderns because they are found in certain caverns in Rome, which in ancient days were chambers, baths, studies, halls, and other places of the like nature. The curious happened to discover them in these subterraneous caverns, whose low situation is owing to the raising of the surface of the ground in a series of ages; and as these caverns in Rome are commonly called grottoes, they from thence acquired the name of grotesque. But this is not their proper name; for, as the ancients delighted in the composition of chimerical creatures, and gave to the supposed promiscuous breed of animals the appellation of monsters, in like manner artists produced by their foliages monsters of this sort: and that is the proper name for them — not grotesques." *Memoirs of Benvenuto Cellini* p 65

Epitaph for a young Soldier.

"This name I ordered to be carved in the finest antique characters, all of which were represented broken except the first char — "The letters were represented broken, because his corporeal frame was destroyed; and those two

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 letters, namely, the first & last, were pre-
 served entire, the first in allusion to
 that glorious present, which God has
 made us, "a soul enlightened by his
 vine rays, subject to no injury; the
 last on account of the great renown
 of his brave actions." ibid.

Kalmucks.

"No greater than attachment to
 roving life, that I was assured by one
 of their priests that it would be looked
 upon as a sort of violation of religious
 principle if they were even to attempt
 to provide a supply of hay in summer
 to secure their horses & oxen from the danger
 of perishing of hunger in the winter, be-
 cause it would seem an approximation
 to habits which their national prac-
 tices are too obstinately opposed."

"The Kalmucks make no use
 whatever of vegetables, the herbs of the steppe,
 or fruits; probably because their production in
 sufficient abundance might improve upon
 them the necessity of attending to the cul-
 tivation of the soil, and this, were it only
 for a single season, might interfere
 with the independence of their roving
 life. Their only concern is their flocks
 and herds, which they find adequate to the
 supply of all their wants."

— — — The migration from the winter to the summer pastures constitutes the only important event in his accustomed existence." Parrot; Journey to Ararat. 17

Houses of Tiflis in Georgia.

The roof is formed of a layer of earth & stiff clay, about two feet thick. There flat terraces are, moreover, usually overgrown with tender weeds; — — — This becomes scorched in summer, and then is set on fire to get rid of the dry stalks, so that the fire, which soon rises on this inflammable vegetable matter, will often present the startling and beautiful spectacle of a wide body of flame sweeping over the city in the night." Visit.

Virginia.

"Some persons who are not well informed, name all North-America Virginia, because Virginia from her tobacco trade is well known."

Van der Donck, New Netherlands, Edition 1656.

Catching Deer.

"Many are taken in the water by persons who reside in the neighborhood of rivers and streams, by the means of boats, with which they pursue the animals. If the deer is so near the shore as to be likely to gain the land before the boat can be near enough to take the prize, the person or persons in the boat shout & hollar loudly, when the echo from the land and woods frightens the animal off from the place to which it was swimming, and fearing & land it is easily taken by these stratagems. This

Beavers.

"Whether they look up when the tree falls, to observe its direction, I have never heard. But I have seen many trees which had been cut down by the beavers, that had fallen just against trees that stood near by, that were left by the animals.

After a tree has fallen down, they then gnaw off the wood into proper lengths for their work. They carry the wood together, and nearly all the inhabitants of the New-Netherlands know that many skins are sold from which

the outside wind hairs are worn off on the back, which are called wood-carriers' skin, because they carried wood for the construction of their houses; this is not done as the ancients relate, between their legs, as upon a sled or wagon; but the Indians who have seen the beaver labor, have frequently told me, that after the wood is cut off and ready for removal, the female places herself under the piece to be removed, which the male and the young ones support on her back to the place where it is used. " Ibid.

Bears & Beech-nuts.

"Propelled by hunger, bears often climb and gather the nut before it is ripe. I have frequently seen, during my back woods excursions, the topmost limbs broken off and pulled in toward the trunk of the tree. From the tree, some of them three inches in diameter, until the whole of the top branches were furled in, forming a tufted circle fifty feet in air."

Forest Life & Forest Trees

John J. Springer.

Eggs of Infusoria

These eggs which are extremely minute, (some of them are only $\frac{1}{12000}$ of an inch in diameter), are scattered everywhere in great profusion, in water, in the air, in mud, and even in snow."

Principles of Zoology
Agassiz & Gould.

Uniformity of color in the Arctic Fauna
"There is not a single bird of brilliant plumage, and not a fish with varied hues. Their forms are regular, and their tints as dusky as the northern heavens." Ibid.

Types of animal location ^{temperately} & America
The types which are peculiar to ^{temperately} Temperate America, and are not found in Europe, are the Opossum, several genera of Insectivora, among them the shrew-mole (*Scalops aquaticus*), and the star-nose mole (*Condylura cristata*), which replaces the Mygale of the Old World; several genera of rodents, especially the muskrat. Among the types characteristic of America must also be mentioned the snapping-turtle among the tortoises; the *Neurobranchius* and *Menopoma*, among the Salamanders; the Gar-pike and *Amia* among the fishes;

and finally among the Crustacea, the Limulus. Among the Lizards which are wanting in temperate America, and which are found in Europe, may be cited the horse, the wild boar, and the true mouse. All the species of domestic mice which live in America, have been brought from the old world." This.

Monkeys of the New & Old Worlds.
 "The monkeys of America have flat and widely separated nostrils, thirty-six teeth, and generally a long, prehensile tail. The monkeys of the old world, on the contrary, have nostrils close together, only thirty-two teeth, and not one of them has a prehensile tail." This

Theophrastus
 Protagoras reports. Theophrastus as the just cultivator of their science. He was born at Eretria in Lesbos in the 3^d century before Christ was a disciple of Plato & Aristotle, the last of whom caused him to take the name of Theophrastus in account of his eloquence & the elegance of his language. The titles of above a hundred treatises which he composed are

enumerated "About 20 of these are extant, among which are his history of stones, his treatise on plants, on the winds, on the signs of fair weather, &c. and his Characters, an excellent moral treatise which was begun in the 99th year of his age." He died in the 107th year of his age, lamenting the shortness of life, and complaining of the partiality of nature in granting longevity to the crow & to the stag, but not to man. "To his care we are indebted for the works of Aristotle - Classical Dict.

Linnaean Vengeance

"The attacks of the whole phalanx of his foreign opponents could not induce him to accept a challenge. The method of his vengeance was equally original and vigorous. He sat enthroned above the whole reign of vegetation. With the plants he transmitted honor & disgrace to posterity. To beautiful plants he assigned the names of his friends, and to the pernicious and inferior ones he gave the names of his enemies. As an instance of this particular, we only need quote here

the Hesperbeckia, Heisteria, Prifoma,
Adansonia, and Routledoria.
 Steven's Life of Linnæus

Ancient Commerce with the East Indies.
 In the account given
 by Strabo of the importations into Egypt,
 cloves, which we know to be the exclusive
 produce of the Moluccas, are expressly
 mentioned." Raffles' Hist. of Java.

X Custom in Pregnancy.

"The pregnant woman must afterwards
 wash her body with the milk of a green
 coconut on the shell of which has
 been previously carved two handsome figures,
 one of each sex, by which the parents
 intend to represent a standard of beauty
 for their expected offspring, and to en-
 grave on the imagination of the mother,
 an impression which may extend to the
 liniment of her infant. The custom
 has opened by her husband." A modern well
 as ancient custom - Ibid.

"As the suraya flower floats in the
 water, so does the heart exist in
 a pure body; but let it not be
 forgotten, that the root of the flower
 holds in the ground, and that the

heart of man depends upon his conduct in life." This from the Niti Sāstra Kāwi.

Origin of Javan Music

"The Javans say the first music which they have an idea was produced by the accidental admission of the air into a bamboo tube, which was up hanging in a tree." Raffles.

Javan Marriage Custom.

"Should any circumstance occur to prevent the bridegroom from attending at the mosque on the day selected for the marriage, he follows the singular custom of reading his kris to the ceremony." This.

Linnaeus

"He put cords in the worn-out shoes which were given him by his comrades, and stitched and mended them with the bark of trees, to enable him at least to go out to collect plants."

Stoever's Life of Linnaeus trans from German by Trapp.

Newton's theory confirmed

Newton maintained the flatness of the earth at the poles. The Italian astronomer Cassini attempted to refute this hypothesis. "To decide this contest, then, learned expedition was undertaken at Paris, through the endeavor of Count Maurepas, an expedition which will ever be memorable in the annals of literature."

Condaminé was dispatched from Paris to Peru with another society to measure there the degrees beneath the equator, and Maupertuis, Outhier, Clairaut, Camus, and Mournier, repaired to Tornea in Lapland, whither they were accompanied from Upsal by Andrew Celsius, the Swedish astronomer. The result of both these voyages & observations, was a full confirmation of Newton's opinion, that the earth is a spheroid, higher toward the equator and more depressed about the poles." (Newton was dead) This

Sinnæus Professor of Bot. at
Upsal.

" The usual number of students was
500 ——— But during the rep-
temial war in 1759, while Sin-
næus was rector for six months,
the number of students amounted
to one thousand five hundred.
To profit by his knowledge pupils
came from Russia, Norway, Denmark,
Great Britain, Holland, Germany,
Switzerland, &c., even from America.
He made summer excursions
at the head of his pupils, who fre-
quently attended him to the number
of upwards of two hundred. They then
went in small parties to explore dif-
ferent districts of the country. When-
ever some rare or remarkable plant,
or some other natural curiosity
was discovered, a signal was given
with a horn or trumpet, upon
which the whole corps joined their
chief, to hear his demonstrations
& remarks. What swelled his an-
dience was a fine regulation made
in his time at Upsal, in consequence
of which all the young students of
divinity and country rectors were
obliged to learn the elements of botany
and domestic medicine, that they

might be able to act as Physicians in remote districts where regular medical assistance could not speedily enough be procured." This

"Prolepsis Plantarum"

"He considered ^{the} [blossoms] as a sudden display ^{of the leaves & the} [Prolepsis Plantarum], as the anticipation of a growth of five years." This

Roussseau's Opinion, Siinaeus

"Roussseau afterward shewed me Siinaeus' *Philosophia Botanica*, saying, 'This book contains more knowledge than the largest folio volumes.'" (Bycernstahl's Letters) This

Classification of Writers on Botany

In Siinaeus' *Bibliotheca Botanica* authors are classed as follow

- | | |
|-------------------|--------------------|
| 1. Patres. | 9. Peregrinatores. |
| 2. Commentatores. | 10. Philosophi. |
| 3. Iconographi. | 11. Systematici. |
| 4. Descriptores. | 12. Nomenclatores. |
| 5. Monographi. | 13. Anatomici. |
| 6. Curiosi. | 14. Hortulani. |
| 7. Adonistae. | 15. Medici. |
| 8. Floristae. | 16. Anomali. |

Suttons's view of Siinaeus.

Trivial Names in Botany.

"In this work, [The Species Plantarum of Linnaeus, by one called 'Opus maximum et aeternum' which appeared in 1753] for the first time, the professor has given to each plant what he calls a trivial name: that is, a single epithet, which may be expressive, as far as possible, of the essential specific difference among the species of the genus: this, however, can take place but rarely; in other instances it is expressive of some, the most striking and obvious difference; and not seldom it is a local term; or the name of the first discoverer."

The hint of these "was probably borrowed from Rivini" ibid.

Winter food of the Reindeer

"In winter, they are solely sustained by the Reindeer liverwort, (Lichen Rangiferinus) or Coralline Moss, with which the Alps of the north are covered." (Cornu Tarandus, C.F. Hoffberg.) ibid.

Culina Mutata. M.G. Osterman

"The Accorus & Alutis of the primitive days have given way to all the variety of sweeter

farinaceous seeds, roots."

"To the Malvaceous tribe of plants, so much used by the Greeks, and Romans, have succeeded the more grateful Spinach. And to the Polio, the Garden Orach."

"The rough Porage is supplanted by the acerbent Sorrel; and Asparagus has banished a number of roots, recorded by the Roman writers under the name of Cibula—&c."

"Our author, however, thinks that the Parosip has undeservedly usurped the place of the Skirret."

"The Bean of the ancients, in proper so called, being the roots as well as other parts of the Nymphaea Nelumbo, Sp. Pl. 730, or Indian Water Lily, is superseded by the Kidney-bean."

"The Garden Rocket, (Brassica Erucac) eaten with and as an antidote against, the chilling Lettuce, is banished by the more agreeable Cress, and Tarragon. The Opium by the meliorated Gallery, the Pompon, and others of the Cucurbitaceous tribe, by the Melon; and the Sumach Prunice by the fragrant Nutmeg."

"The Silphium, or Succus Cyrenais, which the Romans purchased from Peria & India, at a great price, and is thought by some to have been the Ara foetida of the present time, is no longer used in preference to the

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Altiaceous tribe."

"The change of Bil for Butter; of Honey for Sugar; of Mulsa, liquor made of wine, water, and honey, for the exquisite Mixes of modern times; and that of the ancient Zythum, for the improved Malt Liquors of this day, are all recited: not to mention also the Calida of the Roman Taverns, analogous to our bewitching Tea & Coffee. This

American fruits cast on the shore of Norway.

Some "so recent as to germinate." -
 "These fruits are usually the Cassia Fistula: Anacardium, or Cashew Nuts: Cucurbitae Lagenariae, Prottle Gourds: Pods of the Mimosa Scandens, - called Cacoon in the West Indies: Pods of the Pisidia Erythrina, called "Joy-wood Tree" by Planc: and Coco-nuts.
 H Tanning - This -
 Taken from the Amoenitates Academicae.

Kalendarium Florae

"Linnaeus - demonstrated how accurately flowers perform the service time-wise, in which the

hour of the day can be precisely as-
certained; he composed a calendar for
the period when the plants *flourish*
then blossom, (*Calendarium Florae*)
and pointed out from this calendar
in what manner the time best calculated
for certain labors of rural economy
may be chosen, &c." *Flora's Life of Lin.*

Who treated of N. Am. plants before Kalm
Gornutus 1625; Barister, in Ray's
history, 1680; Plukenet in 1691; Bobart,
in 1699; Ray, in his supplement, 1704; Gate, by
1731; Gronovius, or rather Clayton, 1739;
Dr Mitchell, 1748; Governor Colden, 1743.
By the industry of these writers, botany had
been augmented with 74 new genera, to
which Kalm added 8.
(Chenon Am. Acad.) Pulteney's View

Travelling Disciples of Linnaeus.

Six of his pupils "six ambassadors of Flora,"
"were stopped in their mission by prema-
ture death. Viz. Turström, Samuelsson,
Forskal, Loepling, Falk, & Bygnerstahl.

Then there were Kalm, Torén, & Beck, the
last two to the East Indies. & Beck, who "The
Captain of the Ship himself became con-
spicuous for his love of natural history, & the

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zeal with which he served Linnaeus. His name was Ekeberg" The ship was a Swedish East-Indiaman. Magnusson - Thunberg whose travel are trans. into English - Solander

In European States - Kochler, Alstroemer, Martin, Froil, Rottmann, Fabricius, Giesecke, Ehrhart, Ferber, Montin, Falke & Bergius &c. 'Stoever's Life of'

Frame of Linnaeus.

"While ^[Bjornstahl] he was at Thessalonica in Turkey he saw a Greek in a field, who was walking about with a book in his hand." Upon the Linnaean System of Nature which Forster had given him - then physician to the Pacha - at Cairo.

Sand. fleas

"The children even of rich people go without shoes or stockings, but before they go to bed it is necessary to examine their little feet, and take out the sand-fleas that may have nestled in them - an operation which is commonly performed by the elder negro children with a pin."

John Pfeiffer's Lady's voyage round the world" (near Rio de Janeiro)

The Pure Indians
Near Rio. -

"For yesterday, to-day, and to-morrow they have only one word, and they express the variety of meaning by 'pointing backward for yesterday, forward for to-morrow, and overhead for the passing day.' Whit.

Smelling Gold.

"He [a Whittian] then remarked a ring on my finger, and after smelling it also, inquired that he would accept of that one. I am told they can always distinguish real gold by the smell." Whit.

A Chinese Lady's Foot.

"The forepart of the foot was so tightly bound with strong broad ligatures, that all the growth is forced into height instead of length & breadth, and formed a thick hump at the ankle; the under part measured scarcely 4 inches long and an inch and a half wide." Whit.

Papa & Mama

"To my great surprise I heard the [Arab] children call their mother mama or nana, and their father baba." Whit
near Nineteen

Natural Arrangement of Plants in London.

First grand Division, Vasculars - with woody fibre and cellular tissue.

1st Class, Dicotyledones or Exogenes

Subdiv. 1st Dichlamydeae calyx & corolla distinct

Sub-class 1st Thalamiflorae stamens under the pistillum

" 2^d Calyciflorae stamens on calyx

" 3^d Corolliflorae " on corolla

Subdiv. 2^d Monochlamydeae Calyx & corolla not distinct.

2^d Class Monocotyledones or Endogenes

2^d grand Division Cellulares cellular tissue only

1st Class, Foliaceae leafy habit

2^d " Aphyllae

For red varieties of Nat. Hist. V 9th General 1/3 way.

The Cellulares answer to the Linnaean Cryptogamia, and are also called Acotyledonous.

The Vasculars, & the Phanerogamia and Cotyledonous.

Cellular plants are formed entirely of cellular tissue; without woody fibre or spiral vessels; or in more familiar terms by having no veins in their leaves, if foliaceous, and not forming wood; they also are destitute of perfect flowers. The lower tubes, such as Fungi & Algae, are destitute of leaves, and in some

points approach the animal kingdom so nearly as to be scarcely distinguishable. In the highest tribe, Ferns, apparent veins are formed in the leaves; but as they are imperfectly supplied with spiral vessels, they cannot be considered more than analogous to the veins of other plants. Ferns, however, hold the intermediate station between Cellulares & Vasculares, and are chiefly retained among the former on account of their perfect accordance in other respects. In the whole of the Acotyledones, it is unnecessary to examine the seed for the purpose of determining whether it has one cotyledon, several cotyledons, or none, the structure of the perfect plant giving the most obvious & satisfactory evidence." This last true excepting one case in 500 of the Vasculares.

The Vasculares have cellular tissue, woody fibre spiral vessels, leaves with veins & perfect flowers i.e. fls with stamina pistillum or both.

The 2nd is the lowest class of Vasculares. It has only one cotyledon or 2 alternate In the 1st class they are more than one - sometimes several as in pines & sand opposite. These 2 classes differ in their seeds. In the 2nd wood & cellular tissue mixed without annual layers - 1st not so. 2nd is silver

protrude & generally no articulation between the leaves and the stem. - & the veins of the leaves are parallel.

A natural order commonly named pansy type - as Ranunculaceae - but some have popular names as Compositae &c derived from peculiarities.

An order terminates in aceae, a sub-order in eae - but this is only partially the rule - on account of the spelling and grammatical construction in some cases.

Infra following the system of Linnaeus as far as poss.

Cryptogamia sex.org. hidden, imperf. or not existing.

Differing from the other class in the org. of reprod. - which have not male & female parts - but either buds of a peculiar form, or vessels with something like seeds, but not the result of impregnation - and also in striking root from any part of their surface. The internal composition of the sporule, from viviparous, unknown. Willdenow describes Crypt- Plants the vegetables without any visible flower, & differing from other plants & also one another in their external character. More modern botanists distinguish them by the absence of lymphatic vessels, and of pores of the epidermis - but to their def. there are objections. I adopt the definition of Will-

know. but adheres, in the arrangement of the axes, to the divisions of modern writers.

- 1st order Filices. Reprod. org. uniform. Thecae naked, or covered by an involucre, placed on the back of a pond, which is either foliaceous, or contracted in such a way as only to cover the cluster of Thecae, and always circinate when young.
- 2nd " Equisetaceae. Reprod. org. unif. in terminal spikes of peltate several-sided scales, producing on their under surf. 4-7 elongated involucres containing the seeds. Branches whorled, rigid.
- 3rd " Lycopodiaceae. Reprod. org. axillary, sometimes apparently spiked. Thecae? of two kinds, one with granules, the other larger bodies. Stem covered with many small leaves.
- 4th " Marsileaceae. Reprod. org. radical, unif. sporules? in roundish one or many-celled indehiscent heads. Plants minile, aquatic.
- 5th " Musci. Reprod. org. 2 kinds. Thecae many-seeded, solitary, with an operculum & columella. Plants leafy.
- 6th " Hepaticae. Reprod. org. 2 kinds. 1st Thecae without operculum, naked or sessile, with a veil, through which there are more or less protuber. Sporules naked or mixed with spiral threads. 2nd Minute roundish or oblong bodies variously situated. Plants pondweeds, or cellular structure, not submerged

- 7th order. Algae. Reprod. org. 2 kinds. 1st keeze or tubercles variously situated. 2nd sporules or granules, naked, or immersed in the pond. Plants always agnate & submerged.
- 8th " Lichenes. Reprod. org: unif. Sporules in receptacles of var. forms, distinct in substance from the Thallus, which is either pulverulent, crustaceous, membranous, foliaceous, or branched & shrub-like.
- 9th " Fungi. Reprod. ^{org.} unif. Sporules arranged in tubular cells, placed in some part of the external surface, substance various, mostly thick & fleshy, sometimes vesicular. Thallus none.

The 1st order the most beautiful - Sir James E.D. Smith the first important name. Then Swartz, Willdenow, Brown & finally Kaulfuss & Halle whose arrangement in '24 is adopted as most recent.

Principal distinction in the situation of their zori, or patches of reprod. org. which are always on the back of the leaf or, as called in ferns, the pond; sometimes in the form of little spots, some times covering the whole under side, and sometimes contrasting the substance of the pond, so that it looks like a single mark of putrefaction arising in a determinate manner. Folds

always rolled up in a circinate manner when first developed. The rachis = the petiole of a compound leaf. The sori are groups of thecae, either naked or covered with an involucre called indusium. The latter org. either bursts outwardly toward the margin of the frond, or inwardly toward the midrib or rachis. They are either single or double; in the last case a cover on each side the sorus. Thecae or capsules made in two ways; - either surrounded by an elastic furrowed ring - annulate or without it - exannulate. Thecae contain the minute powder by which ferns are reproduced, the constituent parts of which are called spores, analogous to seeds.

3 tribes - Polypodiaceae - Oncomendaceae - Ophioglossae - with many genera.

2^d Order. has only one genus - Equisetum
Horse-tail - very interesting & economical. Stems & branches reg. articulated, rising from a tubular sheath. No leaves. Several wedge shaped hollow bodies project from the surface of the stem, and constantly inwardly discharge their contents, which are used well understood. Etc about the granules.

3^d Order. The sometimes apparently forked arrangement of the reprod. organs, is caused by the partial union of the leaves. Thecae called variously capsules, conceptacula & cocci - nature of the granules not well understood. 2 genera Equisetum -

Podium - (Club-moss) & *Psilotum*.

Order 4th. Few plants - few wide high - more
slender aquatic. - not well understood.

ord. 5. Distinguished by Reprod. Org. The most
obvious of these is a theca with an
operculum ^{retaining the spores} & a columella, or central axis
about which they are attached. The other minute
spherical pedicelled organs concealed
in the axils of some of the leaves. The
theca is entire, or split into four valves.
When young in an indurium, which is
torn around & carried up with the theca
which remains on the summit of the
theca like an extinguisher (calyptra) but
on one side it is called dividuate,
divided at base into many short lobes,
it is termed nutriform. The surface of
the theca when the operculum is re-
moved, is either covered by a simple
membrane, or by various processes, called
the peristome, either annular, or in
the form of teeth, in a single or double
row. From the number of these processes
and the manner of their division - the genera
are obtained. Better arranged than
the rest of the *Cryptogamia*.
Hooker - Greville Brown in England -
Ledwig, Marten, Bridel, Schwachbach,
Péribon de Méauvois, & ces von Ehrenb.

and Hornschuch-chlorella. The arrangement of the last 2 chiefly here. 2 tribes Eraginulati & Vaginulati Oocarpii. Only Sphaerium in the 1st

Ord 6th Formerly with Algae - but diff. in the theca. & the foliaceous pond never submerged, in which were like Nereis. Diff. from last in having no operculum & theca, and excepting Marchantia & Jungermannia, no calyptra. 7 genera. very diff. related in org. of vegetative. not of reprod. The herbage a variously dilated frond flat on its ground, generally naked, but in many Jungermannia, covered with small leaves, often divided but never veined. so that they are rather dilatations of the frond; substance loosely cellular, sometimes compact, as in Marchantia.

Ord 7th. Sea-weeds & occur in ditches & rivers little known of Reprod. org. Sporules very variously situated in thecae tubercles, etc. Agardh of Lund defines them "Aquatic plants destitute of cotyledons and of sexual organs; gelatinous, membranous, or coriaceous; filamentous, luminous, or even leafy; in color green, purple, or olivaceous; young or continuing; bearing sporidia (little transparent bodies containing sporules) either included in pericarps or scattered over the surface." Algae, lichens & Fungi -

3 forms of the lower border of veg. Many of the first are considered animalcula, and others young seedling plants of mosses.

6 tribes, Diatomaceae, Nostochinae, Conjunctivoideae, Ulvaceae, Florideae, Fucoidae

and 8th of these last 3 orders each is resolved into the other when in the least stage of composition. Pseudo-lichenes considered Fungi by some, & made a distinct class (Hypoxyla)

"The fructification is usually in the form of shield or cup-like receptacles, dispersed over the surface of the frond or thallus, and bearing various names according to their nature. Apothecia is the common term used to designate the fructification. Podetia are the stalk-like processes of the frond, which bear the apothecia on their summit. Siphonae are cup-like apothecia. Cyphellae are pale tubercular spots on the under side of the frond. Sacunae are small hollow or pits on the upper surface of the frond. Soredia are little heaps of free pulverulent bodies, mostly of a whitish color, placed on various parts of the frond. Pulvinuli are spongy, & crecence-like bodies arising from the frond, and often resembling minute trees. Nucleus proligerus, or kernel, is a distinct cartilaginous body coming out entire from the apothecia, and containing

sporules. Sarcina prolegera is a distinct body containing the sporules, separating from the sporothecia, often very convex and variable in form, and mostly dissolving into "gelatinous mass". The arrangement of Achanis which is the most celebrated is here followed.

5 tribes, Idisthalamis, Cocnothalamis, Homothalamis - these depending upon the circumstance whether the sporothecia is wholly distinct in substance from - or partially & wholly one with it. A thalamis without sporothecia. Pseudo-Eichleria the sporothecia black - corneous, imbedded in a receptacle, sporules in slender tubular cells, lying in a pulp, not spontaneously evicted.

and 9th perhaps the lower be the scale.

Fries, whose arrangement is adopted, regards beyond all these last 3 orders as the same being affected by the material on which they grow & the elements on which they depend. Algae, which reach the air contain becoming lichens, he says. But there is a greater diff. between Algae & Fungi. The latter is reproductive in its essence, the former promiscuous. "In algae the thallus most essentially the vegetative org. 2^d long. In Fungi the whole plant is generally a mass of reproductive matter, and the thallus always accidental, Fungi always grow upon

dead vegetable matter; Lichens, always upon
 living vegetation. The bark, which, when
 living, bears Lichens, produces Fungi as
 soon as it begins to decay; and even
 on the same half dead-branch, the living
 side will be found occupied by Lichens,
 and the dead by minute Fungi. The
 lowest Fungi are considered by Fries,
 to bear the same relation to plants
 as Entozoa to animals; for which
 reason he is of opinion that all infe-
 rior plants are Fungi, and not
 Algae. But this may be doubted. The
 number of Fungi is incalculable. On
 Mucedo, in the small space of a square per-
 ch, where the number of Rhizogon-
 imous plants was 420, and of Lichens
 & Algae 430, Fries discovered more
 than 2000 species of Fungi."

Link defines the essence of a Fungus
 the spores, disposed in a series, in
 elongated tubular cells; the cells
 situated in some part of the exter-
 nal surface. The part in which
 the reproductive organs are placed
 is called the apothecium, the hollow
 base from which the stem or stipe
 arises, is named the volva, or wrapper;
 the upper part is the cap or
 pileus, which is provided on the in-
 terior surface with thin and radiating

expansions, which are termed gills or lamellae, among which the spores are situated. Many Agarics have a delicate fringe connecting the margin of the pileus at a certain age with the stem; this is called the veil, and is either general (universal), when aduate with the surface of the pileus, but becoming obsolete with age; or it is partial when it extends only from the margin of the pileus to the stipes. The annulus is a kind of veil, which is sometimes fixed to the stem, at others free and capable of being moved upwards & downwards. The Peridium, Perithecium, or Perisporium, are different names for the envelope immediately enveloping the spores."

4 Tribes. Hymenomycetes, Gastromycetes, Hyphomycetes, Coniomycetes.

Observations by Prof. Agardh on
the Order of Celluloses & contrast
with the foregoing.

I copy some of them.

1st Filices

Old botanists denied them fruit. Thinking the seeds so rare as to invest any body with invisibility who could collect them. Nothing yet known of the male organs.

Chiefly inhabitants of the torrid zone - rarer as we approach the poles. Some grow on trees even. Medicinal. Leaves, roots, & some used as food - some for tea.

2^d Equisetaceae

Seeds remarkable for a hygroscopical movement. Equisetum hyemale - a polishing material for furniture called Dutch rushes.

3^d Lycopodiaceae.

Habits of mosses, seeds of ferns. Herbaceous prostrate plants, with intricate simple leaves.

4th Marsileaceae. The above 4
are called of the Class Filices

5th Musci.

Winter plant, reviving in humid air, abundant about the poles, base at the equator.

as high as perpetual snow limits - preserve trees from heat & cold - prepare the earth for more perfect plants, fill boxes & morasses with vegetable matter.
 "more subservient to the economy of nature than the purposes of man".

6th Hepaticae
 Creeping small plants with their leaves arranged in an intricate manner. Dif. from Lichens in structure - color & fruit; from Musci, in the delicence of their capsule.

7th Algae
 According from the simplest form of veg. to a very compound state. Lowest filiform leafless, & fructification immersed; highest, leafy, fructification in an intricate mass like penicillium. Some copulate like animals, others have a spontaneous motion like worms. Color bright; in lowest grades green, in highest red or purple. Some are recumbent like violets. Substance gelatinous, membranous, or coriaceous, usually covered externally with mucus.

8th Lichenes
 Not only useful in the economy of nature but for man. many as Cetraria Islandica, are eatable others used for dying - in medicine &c &c

of the Fungi

Lowest form. "The mould on the cheese, the ergot of corn, the rust of the rose, and the huge Boletus, which in Java, spreads out its many-branched body from the trunks of ancient trees like a vegetating demon, differ only in the number of the vesicles of which they are composed." Many eatable as Agaricus campestris. - some deadly as Boletus scaber &c. some constitute dry rot. Known in cold countries scarce in warm. The last 5 Aphylas

"After the most perfect classification which the present state of botanical knowledge renders practicable, there still remain a few genera which are incapable of having their true position assigned to them either in consequence of their structure not having yet been discovered being in completely known, or of their affinity not having yet been discovered."

Facts from Lousdon's 'Encyclopedia
of Plants. - Slightly & loosely

- Leguminosum* - Prince, from ligare & tie.
Lilac - Persian word for a flower
Gratiola - Hede. hymn, from gratia grace (of God.)
Utricularia - utricula a little bottle.
Iris - - from the variety of its colors.
Arundo phragmites - φραγμος a hedge - Britain.
 Fr. Roseau de Marais. - Germ.
 Gemeine Rohr. - Ital. Cana palustre.
A. Donax - for fishing rods in South Europe.
Triticum aestivum, *hybernium* &c. "According
 to Varro was so named from its
 grain being originally worn down
 (tritum) by making it eatable. This
 is by far the most important genus
 of the Gramineae, as including
 the wheat, the flower of which is
 universally allowed to make the
 best bread in the world. For
 what is man upon rice & po-
 tatoes?"
- Secale cereale* (common rye) supposed from
 seeds to cut, and then from Celtic
 raga a rickle. "Next in value to
 wheat for making bread."
- Saccharum officinarum* (Common sugar-
 cane. "unknown to the ancients".
- Galium aparine* (from ἀπαρῶ, to lay hold
 of) has the fruit set with hooked

brittle, which adhere to whatever they come
 in contact with, whence it is called by
 the Greeks Philanthropon (man-
 lover) - and by us cleavers, catch-
 weed, revatch weed &c.
 Plantago - "a name of which no satisfactory
 explanation has been given"!!

[Seven blank pages at this
point in the manuscript.]

America

"in both the northern and southern hemispheres of the new world Nature has not only outlined her work, on a larger scale, but has painted the whole picture with brighter and more costly colors than she used in delineating, and in beautifying the old world."

"The heavens of America appear infinitely higher - the sky is bluer - the air is purer - the cold is intenser - the moon looks larger - the stars are brighter - the thunder is louder - the lightning is vivid - the wind is stronger - the rain is heavier - the mountains are higher - the rivers larger - the forests bigger - the plains broader."

Heard's Emigrant

Flies altering the Climate of N. Am.

They sting the wild animals, which rush to the smoke whenever the forest happens to on fire, & annoy their enemies. The Indian accordingly sets fire to the woods, & the flies drive to him his game. This let in the sun - melts the snow - & changes the climate. This

Disappearance of the Elk, Bear &c.

They "Not only is the Am. Continent gradually undergoing a process which, with other causes, will annihilate it eliminate it that of Europe, but the Indians themselves are clearing and preparing their own country for the reception of another race, who will hereafter gaze at the remains of the elk, the bear, and the beaver, with the same feelings of astonishment with which similar vestiges are discovered in Europe — the monuments of a state of existence that has passed away." This

Temperature of Ice

"In Lower Canada it occasionally sinks to 40° below zero, or to 72° below the temperature of ice just re-coagulated." Varies in different places & hence one ice will keep longer than another. This.

x The Emigrants' Lark, or Home Sweet Home.

A poor emigrant there-wither brought over an English lay-lark to Canada. The vessel was wrecked in the Gulf of the Lawrence, and he preserved his lark, and afterwards kept it for 3 days in the foot of an old stocking. He retells himself to his trade in Toronto & every morning hangs the lark's case

outside his window. before his hearth. Every
 power stopped to listen to his song — "Even
 the trading Yankee, in whose country, birds
 of the most gorgeous plumage snuffle
 rather than sing, must have acknowl-
 edged that the heaven-born talent of
 this little bird unaccountably warmed
 the Anglo-Saxon blood that flowed in
 his veins." — "He was the most powerful
 but advocate of Church & State in her
 Majesty's dominions." Three times
 when his master "interrupted in his work
 by people who each separately offered
 him one hundred dollars for his
 lark; an old farmer repeatedly of-
 fered him a hundred acres of land
 for him; and a poor furrier, who
 had imprudently stopped to hear
 him sing, was so completely overwhelmed
 with affection and maladie du pays,
 that, walking into the shop, to offer
 for him all he possessed in the
 world... his horse & cart. but
 his master would sell him for one."

Finally the slave-maker died
 & the Governor General obtained him.
 but says the latter "whether it was
 that he disliked the movement, or
 rather, want of movement in any
 shows, — or whether from some mys-

at 5 or 6 o'clock in the evening, was a quiet, steady, unrelenting trot; "talking with me" as accompanied him. This

Drowned Land.

"The flooding of the wilderness [on the Rideau Canal] was a sentence of death to every tree whose roots remained covered with water; and yet no sooner was this operation effected than Nature appeared determined to repair the injury by converting the fluit which had created the desolation into a verdant prairie; and accordingly from the hidden soil beneath there arose to the surface of these artificial lakes a thin green sward, which gradually thickened, until the whole surface assumed the appearance I have described." This becomes poisonous life.

× Observers - Philosophical Observers -
 - Naturalists.
 - "They [realists] start either simply from nature without philosophical grounds or ends, and accommodate only and then accommodate facts, - the observers; or again, knowing that man and reason are first, and that we cannot proceed but from them and with them."

They begin scientifically with what they must begin with at any rate, (differing from the former, then, as mechanicians do from mechanics,) and have hence a ground in the philosophy of their own being, and hence, also, an aim, — the philosophical observers; or finally, in some large and beautiful minds, we can discern neither of these ways by itself, but only what seems their real and original union, wherein the divine reason appears, αὐτόνομος αὐτοδίκος, and facts are observed not only, but eternal laws are prescribed to science, — the naturalists."

E. Tuckerman's Essay on the Nat. Systems &c

Silicious

cease "only at perpetual water & perpetual 'now'" In the same book

"Algae are either aerial, amphibial, or aquatic, and fall into three orders, Sili-
cious, Pyrenaceae and Phyceae."

"*Philorophia Botanica*" Ibid.

The same quote, Rousseau a saying of this book — "C'est le livre le plus philosophique que j'ai vu de ma vie."

and Spengel in saying
"L'usage qui est canonique *Philosophie Botanica* est unique source de application religieuse des canons."

Thallophyta

"Lichenes are — an order of Algae, or Protophyta, which is a section of Thallophyta."

"Thallophyta (Homoneuraceae, Fries) are the lowest forms of vegetable life. With one of the two sections into which this greater division falls, — Protophyta or Algae, — vegetation has been said to begin first from it to ascend: with the other, — Mycetozephyta, or Fungi, — the whole vegetable system to be, as it were, concluded & finished."

Ibid. (accord to
System of Endlicher)

The Descendants of the Northmen.

"The sites, and even the names, of the little estates, or grounds on which these men were born, remain unchanged, in many instances, to this day; and the posterity of the original proprietors of the 9th century may reasonably be supposed, in a country in which the land is entailed by feudal right upon the family, to be at this day the possessors — engaged, however, now in cutting wood for the French & Newcastle market, instead of in

conquering Normandy and Northumb-
erland." *Sam's Sea Kings of Norway.*

The dry docks of Rolf Ganger
-- "Europe holds no memor-
ials of ancient historical events
which have been attended by such
great results in our times, as some
wide excavations in the shore
banks of the island of Vigor, in Möre,
which are pointed out by the finger
of tradition as the dry docks
in which the vessels of Rolf
Ganger, from whom the fifth
in descent was our first Con-
queror, were drawn up in winter,
and from whence he launched them,
and set out from Norway on the
expedition in which he conquered
Normandy." *ibid.*

x) Origin of the Nave in Architecture.
"The nave of the Gothic
cathedral, with its round or pointed
arches, is the inside of a vessel with
its timbers and masts raised upon
posts & reversed." Hence the name
of the main body of the Gothic church,
nave, navis, of ship.

Parallax

The instruments which Struve & Bessel used in 37-8 to discover the parallax of fixed stars, appreciated $\frac{1}{10}$ of an inch - equivalent to measuring a line an inch long at the dist. of 32 $\frac{1}{10}$ miles.

Young's 'Lectures on Ast.
reported in "Traveller"

A Northman's war-ship

"One of these long low war-ships, of the vikings, with a gilded head representing a dragon on the stem, and a gilded representation of its tail at the stern curling over the head of the steersman, with a row of shining red and white shields hung over the rails all round from stem to stern, representing its ready sides, and thirty oars on each side giving it motion and representing its legs, must have been as swift representation of the ideal figure of a dragon creeping over the blue color surface of a narrow gloomy fiord, sunk deep, like some shade for unearthly creatures, between precipices of bare black rock, which shut out the full light of day."

Dragon was a name for a class or vice
 of war-ships, i.e. "Savings" the kings of Norway
 Northmen in America.

"The most interesting of these inscriptions
 [in Greenland & its neighborhood] is one
 discovered in 1824, in the island King-
 igtorssook in Baffin's Bay, in latitude 72°
 $55'$ north, longitude $56^{\circ} 5'$ west of
 Greenwich" — — — "The inscription found
 in this high latitude was sent to three
 of the greatest antiquaries and Ru-
 nic scholars in Europe — Finn Magnusen,
 Professor Rask, and Dr. Brynolfson
 in Iceland; and, without communica-
 tion with each other, they arrived at the
 same interpretation, viz. "Erling Sig-
 vation and Biorne Thordarson and Ein-
 rid Oddson, on Saturday before Ascension
 week, raised these marks, and cleared
 ground. 1135" i.e. took possession of the
 land. — — — "All that can be
 proved, or that is required & as proved,
 for establishing the priority of the
 discovery of America by the Northmen,
 is that the saga or traditional ac-
 count of these voyages in the 11th
 century was committed to writing at
 a known date, viz. between 1387 and
 1395, in a manuscript of unquestion-
 able authenticity, of which these par-
 ticular sagas or accounts relative

to Vinland from a small portion;
and that this known date was 80 years
before Columbus visited Iceland to ob-
tain nautical information, viz. in
1497, when he must have heard of
this written account of Vinland; and
it was not till 1492 that he dis-
covered America." This

Odin's Law about Monuments.

"For men of consequence a mound
should be raised to their memory, and
for all other warriors who had
been distinguished for manhood a
standing stone; which custom remained
long after Odin's time." This.

Egil Ulfsaerk.

"High standing stones mark Egil Ulfsaerk's grave."
This.

Haf Tryggvesson.

"King Haf could run across the
oars outside of the vessel while
his men were rowing the Ferspent.
~~He could walk with~~
He could play with three daggers,
so that one was always in the
air, and he took the one falling
by the handle. He could walk

all round upon the 'hips' rail, could
strike & cut equally well with
both hands, and could cast two
spears at once."

Beaver

"They make dams (diques) 4 or
500 feet long, 20 feet high, & 7 or 8 thick
in 5 or 6 months, though there may
be only 100 workers in 'all'."

Voyages de LaFontaine

Natural Method.

Primum & ultimum hoc in Botanica de-
sideratum est. — — — Methodus Naturalis
est ultimus finis Botanices — — — Character
naturalis generum plantarum fundamentum
est, quo destitutus nullus de genere rite
judicabit; adeoque absolutum funda-
mentum cognitionis plantarum est. Erst.
Naturalis quae semper est Species
& Genus; Culturae rarius Varietas; Naturalis
et Artis Classis & Ordo.
Linnaeus Philosophia Botanica.
Vicina 1763

Motion of Plants

Horum dici obremant flores semiflorescens
& varii alii.

Plurimum putat mane Calendula.

Noctu mutat. Graba, &c.

" flaccidit tuitionis, Amorphae.

- " reflectitur Ajys buckia, Triumfetta.
 " clauduntur Mimosa, Papilionaceae,
Lomentaceae.
 " componitur Tamarindus;
 de die autem vigilans patentibus foliis.
 Solem requirit Roseda Luteola, & flore semiflorulosa.
 Defectus motus ex umbra aut nyctra hinc diversa
 statura Pini aliorumque. Ubid.

The Flower

Flos antecedit omnem fructum, ut genera-
 tio partum.

Colecium & Harnamelis autumnis florent,
 cuius fructum in sequenti anno producant.

Calyx ergo est Thalamus, Corolla
Auleum, Filamenta Vasa Spermatica;
Antherae, Tertes, Pollen, Exvitura, Stigma
Vulva, Stylus, Vagina, Germin, Ovarium,
Pericarpium Ovarium paucurdatum, Semen
Ovum.

Calyx ponet pro Gummi Labiis vel Prae-
putis etiam haberi.

Corolla ponet etiam loco Nympharum sumi.
Ubid

Flowers of different Countries.

Primo intuitu distinguit saepius exercitatus
 Botanici plantas Africae, Ariae, Americae,
Alpinumque, sed non facile dicere ipse, et
 quae nota. Nescio, quae facies torva, sicca,

(Africans?)

Obscura; quae superba, exaltata Asiaticis;
quae lacta, glabra Americanis; quae
coarctata, indurata Alpibus? *Ibid*

- Oides

Plantae dubii generis imponi semper ex-
rona nomina, in Oides, vel aliter, diminutiva &c
Ibid

Says that no genus yet contains a hundred
species - Book published 1823 *Ibid*

Time of Flowering &c

Cardui varii non florent antequam solsti-
tium absolutum est

Parnassia foeniculifolia picea est.

Colchicum autumnale & glucunum est.

Colchicum describes 3 kinds of Solar
Flowers - or those which have a determinate
time for opening & closing.

1st The Arctic: Solar Flowers which
obscure their hour less accurately - depending
on the weather. 2nd Tropical S. F. which
open in the morning & close before evening, but
earlier or later in the day as the season &c changes.
3rd & Equinoctial flowers which open at
a certain and positive hour of the day.

Says that if the Calendula that Afri-
cana does not open by 10 o'clock in the morn-
ing, rain will fall that day, "constanti
lege" but it cannot easily foresee a thunder
storm. (at the Wood Garden.)

Also if the Sondus sibiricus is closed at night the next day will for the most part be dry, but if open at night, the next day will for the most part be rainy.

Calendaria Florae in which the time of leafing - flowering - fruiting, and losing the leaves &c are observed so that diff. regions may be compared.

Horologia Florae in which the hour of unfolding the blossom is observed so that one may tell the time of day without a watch or the sun.

All Alpine plants are very rare since no other winter follows spring with summer scarcely tasted, and hence the flower & bear fruit as quickly as possible. Phil.

Snow Fleas

Edward Allen Talbot of the Talbot Settlement Upper Canada. Counted 1000 on a square inch of snow (melting it & dissolve) what gave 1.296.000 on a square yard & he thought that every yard of woodland in the province would average an equal number. Talbot's Fire fleas in the Canadian London 1824.

Bees

"The Indians, who have no name for them in their own language, call them 'English flies'." This.

Says that when the hunter gets near the bee he puts a piece of honey-comb on a heated stick, the odor of which while melting attracts the whole swarm.

Power of the Sun in Northern Latitudes.

"The power of the sun, this day, in a cloudless sky, was so great, that Mr. Bee & I were glad to take shelter in the water while the crew were engaged on the portage. The irritability of the human frame is either greater in these northern latitudes, or the sun, notwithstanding its obliquity, acts more powerfully upon it than near the equator; for I have never felt its direct rays so oppressive within the tropics as I have experienced them to be on some occasions in the high latitudes."

Sir John Richardson's Arctic Searching Expedition. Being near Athabasca Lake. Mosquitoes numerous & troublesome there, and the inhabitants are glad to use ice in the summer. Sir's tribulation, I am much mortified.

Frogs attain the 68th parallel of lat. Snakes the 56th - Tortoises the 51st or 52nd of Lake Winnebago. "The Canada geese, or 'husbands'

of the Canadians (les outardes), bred throughout the woody district, but do not reach the vicinity of the Arctic Sea, except on the banks of some of the large rivers. The most northern localities in which we observed them were the channels between the alluvial islands which form the delta of the Mackenzie. "The barking crow (*Corvus Americanus*) not seen by B. up to 61° "

Mackenzie's River.

"might be navigated by vessels of considerable burden - 12 to 1300 miles".
 Riv. of 1st class. During 190 of lat. The successive portions
 are the Athabasca, Elze or Athabasca, Peace, & Mackenzie. Ibid.

Distribution of Plants.

"A few turnips, radishes, & some other culinary vegetables grow at Fort Good Hope [near the mouth of the Mackenzie] in a warm corner; but none of the cereals are cultivated there, nor do potatoes repay the labor of planting."

"In lat. $68^{\circ} 55'$ N the trees disappeared so suddenly, [he is just reaching the estuary of the Mackenzie] that I could not but attribute their cessation to the influence of the sea-air. Beyond this but a few stunted spruces only, were seen struggling for existence, and some scrubby canoe birches, clinging to the bases of the hills."

About 69° the most N point of the common red currant on this continent as far as he knows - *Ribes sanguineum* is a native of the Pacific coast only.

"Cultivation of the earth was not learned in the north of the Chippeway country, maize maize does not prosper in America beyond the 52nd parallel."

-- "Plants actually grow on the summits of the White Mts. of New Hampshire which are not met with again until we reach the shores of the Arctic Sea."

-- Maize "on the western shore of Europe is not cultivated beyond 46°, though in the valley of the Rhine it extends to 49°."

"In South Am. on the Chile coast, it is planted as low as 40° south." -- "A profitable return can be obtained from it in Rupert's band between the 49th & 51st parallels, where, however, the soil does not accompany it, as on the banks of the Rhine." (on account of the greater heat of the summer.) ---

Aspens spring up on burnt lands, as in Maine. -- "The frozen subsoil of the northern portions of the woodland country does not prevent the timber from attaining a good size, for the roots of the white spruce spread over the icy substratum as they would over smooth soil." -- "On the borders of Great Bear Lake 400 yds are required along the stem of the white spruce to the thickness of a man's waist." -- "At the limit of the woods the white spruce is everywhere the most advanced tree, growing either solitarily or in clumps. The salix speciosa may indeed be said to grow beyond the spruce;

but it does so only on the alluvial points of rivers, and not in its tree form."

Divides N. Am. north of 49th par. in 5 divisions - 1st Eastern Woodland Country from Atlantic west to prairies. 2^d Prærie Grounds north of last to 34th sea - widest at Hudson's Bay & the Welcome where it ex. from 60 to 61st & sea on north, narrowing toward the NW. - 3^d The Prairie District widest on Missouri thence N. to the 60th par. 4th Rocky Mt. chain 5th Woodland Country on Pacific side. - - - In the 1st Div. the white spruce the most abundant and characteristic tree - Beyond the banks of the Saskatchewan the oak, elm, aspen, maples, bass-wood, white thorn, Virginian clematis & "cease to grow" and white spruce is left almost alone except in borders of rivers &c where are aspen, balsam poplar, balsam fir, alders, willows, & in swamps unhealthy black spruces. and a few larches with the latter - &c &c (and here occurs that about white spruce at bottom of last trace) "Not only is the forest crowded, and often almost impenetrably so, when the trees are young, but on the margins of rivers, and other open places, there is a dense herbaceous vegetation, which clothes the ground in Roberts' Land as perfectly as it is covered in a lower latitude, though the vegetation be less rank." In this Div. The Compositæ are the most numerous family of plants - next the Cyperaceæ. - - - - In the 2^d Div.

in some parts surface is covered by a dense carpet of the *Corniculanae tristi*, *divergens*, *ochroleuca*, and *pubescens*, mixed in clumps of *Cetraria cucullata* & *islandica*. - Various shrubs - *Kalmia glauca*, *Empetrum nigrum*, *Silene acaulis*, &c. - *Salix* species - on the sea shore *Potamogeton* &c. - (*Pyrola*) good growth of grasses in many places even on the sea shore. The *Cyperaceae* the most numerous - then *Coniiferae*. "In the Polar regions beyond the continent, the *Coniiferae* take the 1st place in respect of number of species, then come the *Gramineae*, which are closely followed by the *Toxipageae*." (omitting the other divisions) "The families of Polar plants which are most rich in species are the *Coniiferae*, *Gramineae*, *Toxipageae*, *Caryophyllaceae*, and *Compositae*. Of these the *Toxipageae* are most characteristic of extreme northern vegetation." - - - "The plant which Humboldt found highest in the Andes was a *taxipage*." - - - *Abies balsamea* not seen beyond the 62° "it is the *Populus* of the voyagers who prefer its spray to that of any other tree for covering the floor of a tent or winter bivouac - traces south on the Alleghenies, *Stemodia* & cross the Rocky mts to the Pacific. This well below high water mark on the shore of the Bay of Fundy "There wells are evidently supplied from rain

falling in the sand-hills, and kept back
 & the level stratum, we found it by the
 pressure of the sea." This

Foxes used to hide information.

Sir James C. Ross, being in search of Frank-
 lin in 1848 — "During the winter many
 white foxes were taken in traps; and
 copper coils, on which were inscribed notices
 of the situation of the vessels, and of the
 depots of provision, having been secured round
 their necks, they were set at liberty again." This

Wintering in the North.

James Saunders of the 'North Star' sent
 out with supplies for Sir J. C. Ross
 who was in search of Franklin "The ship
 wintered in lat. $76^{\circ}33'N.$, long. $68^{\circ}56\frac{1}{4}'W.$,
 [in Wharfedale Bay] being the most northerly po-
 sition in which any vessel has been known
 to have been laid up." This.

Carrier Pigeons

Sir John Ross took 4 pigeons from a
 lady in Ayrshire. A pigeon appeared
 at the shore on the 13th Oct. From Melville
 Island it is 2400 miles. There was no letter.
 Afterwards learned that he despatched "hair

Storm says it was 5 days going 3000 miles
 The longest flight on record, but we know not where it was carried to the balloon.
 on the 6th or 7th of October. This

Prevalence of Summer.

"In no arctic district which man has yet penetrated, is there a permanent covering of snow through any wide extent of low country. Even at Spitzbergen, only 9° from the Pole, there is a summer in which vegetation proceeds, in which we have crocuses in the flora & fauna. The well-fed herds of reindeer, which that hyperborean land maintains, must find grass & lichens, whereon the pattern of the summer heats to that decrease as in winter cold increases going north. This

Hibernation of Trees

"From the 50th par. northward the trees are frozen to their centres in winter; and consequently, the development of buds & other vital processes, which go on in the temperate climate of England, even in the coldest months, are completely arrested." — "The hibernation of trees ceases long before the temperature of the atmosphere is sufficient to restore activity to the vegetative processes, and before the earth, still enveloped in its snowy covering, has felt the influence of returning spring. This

"Progress of the seasons at Fort Franklin, on Great Bear Lake, in Lat. $65^{\circ}12'N.$, Long. $123^{\circ}12'W.$ "

Deepest snow - which is in Branch averages 3 feet. "About the 10th of April the snow begins to thaw decidedly in the sunshine, and myriads of *Podurae* are seen at such times moving actively in its cavities. Ptarmigan begin to assume their summer plumage toward the end of the month." "From the 10th to the 6th of May waterfowl arrive." - "Singing birds, moles & swifts arrive about the middle of the month. - 23rd of May "there is a bright light at midnight on Great Bear Lake, and the *Fringilla leuco-phyra* is employed with other songsters in singing at that hour." "Snow-geese arrive about this time." "In the beginning of August stars may be seen at midnight; and in the last week of this month the vast flocks of snow-geese are seen going southward, having spent between 80 & 90 days at their breeding stations." "Between the first appearance of vegetation, till the falling of the leaves of deciduous trees, about 100 days elapse; "Hid.

Facts respecting Cryptogamic plants.

Some fungi are "meteoric," that is, spring up after storms, or only in particular states of the atmosphere. This shews, that they are propagated by spores, and that in one individual he has counted 10,000,000, often resembling thin smoke - raised by evaporation into the atmosphere. No inconsiderable number of the fungi of botanists are, actually, either — the deformed roots of flowering plants growing in cellars, clefts of rocks, and walls; or mere stains upon the surface of leaves &c or "diseases of the cuticle," or "irregular expansions of the vegetable tissue." This discoverer 2000 species within the compass of a square furlong in Sweden; of Agaricus alone above 1000 species are described. Number described between 4 & 5000. As food the most valuable Agaricus Campestris, and Truffle, or Truffle, &c One of the most poisonous Amanita muscaria, is called from its power of killing flies when steeped in milk! Used in Kamohatka ac. & Langsdorff taken by Greville, for intoxication - a bolus of it being swallowed; in part its intoxicating quality, & the urine, which they save &

drinks. One may take the urine of another & a third that of the last & be in excellent. "It is a most unremarkable circumstance, and one which deserves particular inquiry, that the growth of the minute Fungi, which constitute what is called mouldiness, is effectually prevented by any kind of perfume. It is known that water will not become mouldy in the neighborhood of Rumia leather, nor any substance if placed within the influence of some essential oil."

"According to Fries, Lichens are types of Algae born in the air, interrupted in their development by the deficiency of water, and stimulated into forming a nucleus ^(conspicuous & thicker) by light." -- Fries refers Byrraceae & Lichens & says to use the words of Lindley that "Some of these plants appear to be meteoric productions; on one occasion they are said to have suddenly overrun all the leaves of trees on the side next the wind in the neighborhood of Dresden; on another, on the 29th of Aug. 1830, to have in an instant spread over the sails and masts of a ship at Stockholm; and Fries is disposed to consider the cobweb-like matter that over-

runs the grass in the mornings of spring and autumn, of this nature, and of an animal origin."

Algae are distinguished from Lichens & Fungi only by their living in water. "Chorda filum, a species common in the North Sea, is frequently found of the length of 30 or 40 feet." "Sargassum fuscum - - - - - 25 or 30 feet long length, with a trunk of the thickness of a man's thigh." (The Macro-cystis pyrifera "This appears to be the seaweed reported by navigators to be from 500 to 1500 feet in length.")

Lindley's Nat. Hist. of Botany London 1836

V It again for the other order of plants.

The English Archer.

"In shooting he did not, as in other nations, keep his left hand steady, and draw his bow with his right: but keeping his right at rest upon the nerve, he putted the whole weight of his body into the horns of his bow. Hence probably arose the English phrase of bending a bow; and the French of drawing one."

x See 13p. Latimer's romans. Scen. VI.

Gilpin's Forest scenery Vol 1st.

Reason of Picturesque Beauty in Woods.

"The intermediate time is the season of picturesque beauty; (before the name of Autumn) when the greens, the browns, and the yellows, are blended together by a variety of middle tints, which often create the most exquisite harmony." Whit.

+ Life in China & Tartary.

The landlord is styled the "Superintendent of the Chest." At one place the first thing he did was to present his guests with a padlock & their apartments. The waiter is the Steward of the Table; the cook the Governor of the Kettle. There are - the inn of Eternal Equity - the Hotel of the Three Perfections - of Infinite Mercy - of the Five Felicities - of Social Relations - & of the Temperate Climate - referring to the warmth of its apartments. — The watchman is the Inspector of the Darkness. A village was named "Waters always flowing."

The robbers are polite; do not demand but ask you to lend them your horse or coat.

Tartary "is a boundless prairie, sometimes broken up by immense lakes, majestic rivers, imposing mountains, but nothing away, always into vast and immeasurable plains: You feel alone in its green solitudes, as in the midst of the ocean."

The traveller carries a stick to keep off the dogs, but Tartar etiquette requires that he leave it at the entrance of the tent, and not affront the inmates by implying that they are all dogs. "My lord Samas," said the old man, "all men are brothers; but those who dwell beneath tents are united as the flesh and the bone."

"A Mongol seems out of his element when he sets his foot on the ground; his step is heavy; the bowed shape of his legs — his bust always stooping forward — his eyes moving incessantly about, — all announce a man who passes the greater part of his life on a horse or on a camel." He sleeps on the back of his camel, while he is grazing. An eagle carried off the traveller's supper while they were eating it.

"On re-entering cultivated lands, the agitation, perplexity & turmoil of civilization oppressed & suffocated us; the air seemed to part us, and we left every moment as if about to die 'asphyxia'."

"When a person has compromised himself, [i.e. been detected in cheating or the like] one must avoid putting him to the blush, or in Chinese phrase, carrying away his face. When our words had covered all their faces," &c.

The vagabond Samas visit all the countries accessible to them. — &c. &c. — Losing their way in the desert is not possible, since all ways are wise to them. Travelling without an object, the places they arrive at are always those where they desire to go. The legend of the Wandering Jew is exactly realised in the persons of these Samas. One would say they are under the influence of some mysterious power, which drives them incessantly onward; and it seems as if God had caused to flow in their veins something of that creative force which urges worlds forward in their course, without ever permitting them to rest."

The cunning Chinese & the simple Tartars have goats on credit charging an exorbitant interest — The interest amounts up with you come to compound interest; it goes on from generation to generation. "A Tartar debt is never paid. — 'Tis a mine of gold."

Life there as on our prairies. They are
dried during or "argols" Each took his
rack & went in search of argols. "Those
who have never led the nomadic life will
have some difficulty in comprehending how
this kind of occupation can be susceptible
of enjoyment. Yet when you have
the good fortune to find suddenly among
the grass an argol of remarkable
size & richness you experience
those sudden pleasurable emotions
that for the moment make you happy."

Describe in ~~Thibet~~ Tartary a praying
mill - a Chu-Kor is a "turning prayer"
They are sometimes made of ~~of~~ & made while
the person whom the prayer concerns is asleep.

The camel is the real treasure of the desert.
It can remain 15 days or even a month with-
out eating or drinking, and however miser-
able the country, it always finds some-
thing to satisfy it, especially if the soil is
impregnated with salt or niter. Plants
that other animals will not touch, brambles
or even dry wood, serve it for food. - "Its
ordinary load is 7 or 800 lbs weight, and
thus laden it can go 40 miles a day."
- To butcher it, Tartary is effect a
transmigration. ~~Tartary~~ ~~there~~ ~~there~~
is nothing west beyond Thibet "The world
ends there" say they, "beyond there is nothing
but a shaggy sea."

The Chinese say of the English - "The
Ing-kie-Si never dare to quit the
sea; as soon as ever they come on
shore they tremble & die like fish."

Describe a tree (one only) in Tibet
(which he saw) every leaf of which was
"distinctly marked with a Tibetan char-
acter."

The fair Tibetans, however, their
faces so as to make themselves ugly
when they go abroad - Those who do
not thus are considered "women of
a bad reputation."

The currency of Tibet is of silver only
- as one side one & small flowers -
these pieces are broken and the number
of flowers on each piece determines its
value. - All chant their prayers
together in the public squares, &
Shadssa at evening.

The way of disposing of the dead is
to cut them up & give them to the dogs
- The poor use the dogs of the sub-
jects, but for the rich "sacred dogs"
are kept.

The prayer chanted on these occasions
is Om mani, padme hum.

Rich & zealous Buddhists entertain
companies of Lamas to propagate
the mani who "chisel & hammer"
in hard, barren fields, mountains,

and heret, engrave the sacred formula on the stones & rocks they encounter in their path." - The prayer means literally

O the jewel in the Lotus! Amen!
 "The Lamas assert that the doctrine contained in these marvellous words is immense, and that the whole life of man is insufficient to measure its depth and extent." - They realize this symbolic formula means "O that I may attain perfection, and be absorbed in Buddha! Amen."

A Journey through Tartary, Persia & China
 by Mr. Hue.

in 44-5-86

2 his next book speaks of The Hotel of Accomplished
 Wishes

Source of the Columbia & the Missouri.

X. "The Spring which is the head of the Yellowstone, gushes out in a strong stream of excellent and very cold water, and about thirty yards from the source it is divided by a large rock into two parts, one of which forms the Yellowstone River, and the other the Lewis Fork of the Columbia."

Collection's Expedition to the Marias, Times
- is told by a fur-trader.

X. Rise & Fall of Rivers.

It is said that "when a stream rises it is higher in the middle than at the shores, and consequently the drift wood floats near the shores, while in falling water the stream is lowest in the middle, and will therefore carry the drift there. My observation on two rivers of the Missouri does not confirm that theory." W.D.

X Bears & Saplandens

"Seems also acquainting us, that the Saplandens never presume to call the Bear by its proper name of Guourhya, but term it 'the old man in the fur cloak', because they esteem it to have the strength of ten men and the sense of twelve. He also said that the Bear is 'the great master of the Kamskatkans in medicine, surgery, and the polite-arts.'"

Richardson's Fauna Boreali-Americana.

White Bears at Sea.

"Captain Sabine mentions that he saw one about midway between the north and south shores of Barrow's Strait, which are forty miles apart, although there was no ice in sight & which he could resort to rest himself upon; - This.

Dogs baying the Moon.

Says of the Canis Familiaris variety of Canadensis (North American dog) which he means that "most generally cultivated by the native tribes of Canada.

and the Hudson's Bay country" —
 — "All the dogs of a camp as-
 semble at night to howl in unison,
 particularly when the moon shines
 bright." — *Thid.*

Musquash.

"Musquash, watsuss, or washuck, also
 peesquaw-tupewew (the animal that sits on
 the ice in a round form), Cree Indian."
 — "Although the fur of the Musquash
 wets the water when the animal is alive, it
 is easily wetted immediately after death." —
 — "In Lat. 55°, the musquash has 3 litters
 in the course of the summer, and from
 3 to 7 young at a litter." — "Inundations
 leaving no resting places destroy great
 numbers. . . . They are sometimes almost
 exterminated from certain parts of the country
 by the freezing up of the swamps, which
 they inhabit. In such cases, being deprived of
 their usual food, they are driven by famine
 to destroy each other." — "Their great
 fecundity, however, enables them to re-
 cover in a very few years,
 although the deaths are at times so nume-
 rous, that a few years, where the Mus-
 quash is the principal return, is not
 infrequently abandoned until they have

recounted. - - "Their favorite haunts are small grassy lakes or swamps, or the grassy borders of slow-flowing streams where there is a muddy bottom. They feed chiefly on vegetable matters; and in northern districts principally on the roots and tender shoots of the bulrush and reed-mace, and on the leaves of various carices and aquatic grasses. The meadow flag (*Acorus calamus*), whose root, according to Pennant, they are very fond of, does not grow to the northward of Lake Winnipeg. -

"When ice forms over the surface of the swamp, the musquash makes breathing holes through it, and protects them from the frost by a covering of mud. In severe winters, however, these holes freeze up, in spite of their covering, and many of the animals die. - - The Indians kill these animals by spearing them through the walls of their houses. - - Burrows & breeds in the banks of this

Eating Deer Manure.

"The hunter breaks the leg bone of a recently slaughtered deer (*Cervus canadensis* var. *agrestis* - *Barren ground Caribou*) and

while the marrow is still warm & warm is with much relish. The kidneys and part of the intestines, particularly the thin folds of the third stomach or many-plies, are likewise occasionally eaten when raw, and the summits of the antlers, as long as they are soft, are also delicacies in a raw state. This.

Effect of Rain

"Even the rain gave a gloomy grandeur to many of the scenes; and by throwing a veil of obscurity over the removed banks of the river, introduced, now & then, something like a pleasing distance."

Observations on the River Wye and several parts of South Wales, &c. relative chiefly to picturesque beauty: made in 1770 by Wm Gilpin. Archdeacon of Salisbury and Vicar of Boldre near Exminster. 5th Edition.

Broken Reflections

"A disturbed surface of water, endeavoring to collect its scattered images and restore them to order, is among the pretty appearances of nature." This.

Castle & Abbey.

"Castle & abbeys have different situations, agreeable to their respective uses. The castle, meant for defence, stands boldly on the hill; the abbey, & intended for meditation, is hid in the sequestered vale."

"Ah! happy thou, if ne superior rock
Bear on its brow the shivered fragment huge
Of some old Norman fortress; happier far,
Ah! then most happy, if the vale below
Wash, with the crystal coolness of its rills,"
Some mould'ring abbey's ivy-vested wall.
This
in his account of Tintern Abbey.

X Facts from Evelyn's Sylva.

Repens & Pliny the saying "That a respect will rather creep into the fire, than over a twig of ash."

"Pliny thinks it a pretty speculation, that a wood should be stronger & stiffer withal, being divided and divided, than when whole and entire." "Of the willow is made the shoemaker's carving & cutting board, as best to preserve the edge of their knives, for its equal softness every way."

The willow "is far the sweetest of all our English fuel, provided it be sound and dry, and emitting little smoke, is the fittest for ladies' chambers,"—"not forgetting the fresh boughs, which of all the trees in nature, yield the most shade, and coolest shade in the hottest season of the day; and this umbrage so wholesome, that physicians prescribe it to feverish persons, permitting them to be placed even about their beds, as a safe and comfortable refrigerium."

Holly

"Then goes a tradition that they will not pass till they be passed through the man of the house; whence the saying, Turdus eximium num cecat."

Burned Trees.

The people of Cumberland who frequently dig up large trees in bogs near the sea shore, observe that the dew "never lies upon that part, under which those trees are interred."

Ship timber.

"It is pretty (saith Pliny) to consider that those trees, which are so much sought after for shipping, should most delight in the highest of mountains, & if it fled from the sea on purpose, and were afraid to descend into the waters." i.e. Pines & Firs

Intestine works.

"Little fir we likewise make all intestine works, as wainscot, floors, pales, baths, laths, boxes, bellies for all musical instruments in general, nay the ribs and sides of that enormous galathea, the so famous Trojan horse, may be thought to be built with this material, and if the poet be mistaken not. The ribs will deal the fit - rectaque integunt abiete costas. Aen. 2.

Making Tar in New England

[This is abbreviated from the Winthrop's account presented to the Royal Soc.] "They [the pitch trees] grow upon the most barren plains, on rocks, also, and hills rising amongst those plains, where several are found

blown down, that have lain so many
 ages, as that the whole bodies, branches
 and roots of the trees being perished,
 some certain knots only of the boughs
 have been left remaining entire (these
 knots are that part where the bough
 is joined to the body of the tree) lying
 at the same distance and posture as
 they grew upon the tree for its whole
 length. The bodies of some of these trees
 are not corrupted through age, but
 quite consumed and reduced to ashes,
 by the annual burnings of the
 Indians, when they set their grounds
 on fire, which yet has, of years, no power
 over these hard knots, beyond a black
 scorching; although being laid on heaps,
 they are apt enough to burn. This of
 these knots they make their tar in New
 England, and the country adjacent, that
 while they are well impregnated with that
 terbitumene and resinous matter, which
 like a balsam preserves them so long
 from putrefaction. The rest of
 the tree he says yields tar "as appears
 by a small crystalline pearl which will
 sweat out if you make an incision.
 but it is too expensive to get the trees
 & get out the knots; so they collect
 cut branches of the above & wash them
 in hearths of clay & stone & burn out

2 The *Phorastrea* account
referred to in Vol 23 of the *E. B. Book* 95

the tar as they make charcoal, and
afterward bind the knots made into ex-
cellent charcoal, preferred by the natives
before any other whatever, which is
made of wood; and nothing is left
burnt out when their blast ceases;
neither do they sparkle in the fire,
as many other sorts of coal do." - "Of

These knots likewise do the planters
split out small stivers, about the
thickness of one's finger, or some what
thinner, which serve them to burn in-
stead of candles, giving a very good
light. Thus they call candle-wood,
and it is in much use both in New Eng-
land, Virginia, and amongst the Dutch
planters in their villages; but for
that it is something offensive, by reason
of the much fuliginous smoke which comes
from it, they commonly burn it in the
chimney corner, upon a flat stone or
iron; except, occasionally they carry a
mistle stick in their hand, as there is
need of light &c. about the house.

Touch

"The timber of it is so exceedingly transpar-
ent, that cabins made of the thin
boards, when in the dark night they
have lighted candles, people who are at
a distance without doors, would in-
quire the whole room to be on fire,

which is 'pretty odd, considering there
is no material to unappt to kindle'.
platamus.

Platanus.

"Platanus, that so beautiful and precious tree, so devoted to Hercules, that Aelian and other authors tell us he made halt, and stop'd his prodigious army of 140000 soldiers, which even covered the sea, & boasted rivers, and thrust mount & thos from the continent, & admire the multitude and procerity of one of these goodly trees, and became so fond of it, that spoiling both himself, his concubines, and great persons, all their jewels, he covered it with gold, gems, necklaces, rings and bracelets, and infinite riches; which was so enamoured of it, that for some days, neither the concernment of his grand expedition, nor interests of honor, nor the necessary motion of his portentous army, could persuade him from it: He styled it his Mistress, his Minion, his Goddess; and when he was forced to part from it, he caused the figure of it to be stamp'd in a medall of gold, which he continually wore about him."

"These trees the Romans first brought
out of the Levant, and cultivated in

so much industry and cost, for its stately and proud head only; the other great orators and statesmen, Cicero & Hortensius would exchange now & then a turn at the bar, that they might have the pleasure to step to their villas, and refresh their platans, which they would often irrigate with wine instead of water.

The Italians having stripped the Appennines of pines & fir, so that Rome herself is exposed to the "whipping trade" of those winds - "in most of those parts of Italy flanked by those hills they are fair to house their orange, and other tender trees, as we do here in England." "My Lord Bacon recommends for trial of a round or knotty piece of timber, to cause me to speak at one of the two towers to his companion, listening at the other; for if it be knotty, the round, says he, will come abrupt."

By the Roman Law trees might not be planted on the very margins of navigable rivers, lest the boats and other vessels passing & anchoring, should be endangered, and therefore such impediments were called *malae*, give names to rivers, says

the glass; and because the falling
of the leaves corrupted the water.
So nor within such a distance of
highways, that they might dry
the better, and less cumber the traveller.

Ancient Forest Laws. "If any
The laws of our King Ina" - "If any
one set fire of a felled wood he shall
be punished and besides pay 3 pounds,
and for those who clandestinely cut
wood (of which the very sound of
the axe shall be sufficient con-
viction) for every tree he shall
be mulcted 30 shillings. A tree
so felled under whose shadow
30 hogs can stand, shall be mulcted
at 3 pounds, &c.

The Armada

I have heard that in the great ex-
pedition of 1588, it was expressly enjoined
the Spanish commanders of that sig-
nal armada, that if when they
landed they should not be able to
subdue our Nation, and make good
their conquest; they should yet be
sure not to leave a tree standing
in the forest of Deane."

In some parts of Germany,
where a single tree is observed to be extra-
ordinary fertile, a courtship and plea-

lupul mast beaver; there are laws & prohibit their killing without special leave. And it was well enacted amongst us that even the owners of woods with shares, should not cut down the timber without view of officers.

Even the "minuti" blaterones querecum, culi, et curbi; as was our law books windfalls, dotterels, scrags, &c. "had to be inspected by the proper officers lest some thing more valuable were carried off.

His "trespasses done de vinidi, on houghs of trees &c." were noticed by the laws.

of the iron-mills that eat up the forests - he asks "What if some of them were even removed into another world! 'twere better to purchase all our iron out of America, than thus to exhaust our woods, at home."

Forest Officers

"We find in Aristotle's Politics, the constitution of extra-urban magistrates, & the *syndarum custodes*; and such were the *consulares syndae*, which the great Caesar himself instituted."

Call him self "udoyevs" or "wood-born" at Wotton in Surrey.

Great trees from small seeds.

"And what most of all, there is perfect an atomist, who will undertake

I detect the thousandth part or point
 of so small a grain; as that insensi-
 ble rudiment, or rather habituous
 spirit, which brings forth the lofty
 fir tree, and the spreading oak?
 That trees so enormous, and higher
 and magnituder, as we find some
 elms, planes, and cypresses; some
 hard as iron, and solid as marble
 for such the thick furrows, many
 should be swaddled, and involved
 within so small a dimension (if a
 point may be said to have any), with-
 out the least luxation, confusion
 or disorder of parts, and in so weak
 and feeble a substance; being at first
 but a kind of tender mucilage, or
 rather rottenness, which so easily dis-
 solves and corrupts substances so much
 harder when they are buried in the
 moist womb of the earth, whilst
 this tender and flexible as it is, shall
 be able in time to displace and rend in
 sunder, whole rocks, of stones, and
 sometimes to cleave them beyond the
 force of iron wedges, so as even to remove
 mountains? For thus no weights are
 able to suppress the victorious palm;
 but this one tree, (like man whose
 inverted symbol he is) being now in cor-
 ruption, rises in glory by little &

little ascending into an hard erect stem of comely dimensions, into a solid tower as it were; and that which but lately a myrtle, and would easily have born this little cavern, now capable of resisting the fury, and braving the rage, of the most impetuous storms." Leaves

The winds which destroy fleets "continually making war & sometimes joining force, with steaming hivers, against the poor cap, tied on by a slender stalk! that it abide, till God bids it fall!"

Prived rap.
"Can we look on the prodigious quantity of liquor, which one poor wounded civil will produce in a few hours, and not be astonished how some trees should in so short a space, weigh more than they weigh?" Of some doleful persons.

Soil

"This space mould is the best and sweetest, being enriched with all that the air, dew, showers and celestial influences can contribute to it."

Rainbow direct to the
 "My Lord Bacon direct to the
 operation of the rainbow, where its
 extremity seems to rest, as pointing
 to a more roscid and fertile mould;
 and this I conceive, may be
 very fallacious, it having two horns,
 or bases, which are even opposite."

Having

"There being in truth no compost,
 or cellation whatsoever compari-
 ble to this continual motion, re-
 position, and turning of the
 mould with the spade." The
 soil requires time, according to
 the depth from whence you fetch
 it, to purge and prepare itself, &
 render it fit for conception, evap-
 orating the malignant habitudes
 and impurities of the imprisoned
 air, excreting the parts, and giving
 easy deliverance to its offspring. -
 I do not dispute whether all
 plants have their provinigential needs,
 and that nothing emerges spontane-
 ously, and at adventure; but that
 there would rise freely, in all places,
 if impediments were removed (of
 which something has already been
 spoken;) and to show how preg-
 nant moist earth would become,

were their indispositions cured, and that those seminal rudiments, whenever latent, were free to move, & exert their virtues, by taking off these chains & weights which fetter and depress them."

"Our worn out & exhausted lay-fields which enjoy their sabbaths."

"For the earth, especially of flesh, has a certain magnetism in it, by which it attracts the salt, however, a virtue (call it either) which gives it life, and is the logic of all the labor and stir we keep about to sustain us; all dungenings and other sordid temperings, being but the vicarious necessities to this improvement," &c

"In Kuelem digby thinks the earthy in pallum attracts vital spirits" from the air.

"Even the biting of cattle gives a gentle loosening to the roots of the herbage, and makes it to grow fine & sweet, and their very breath, & treading, as well as soil, and the comfort of their warm bodies is wholesome, and marvellously cherishing." (Good for orchards)

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The Wilding

"The wilding, (crab or pear) *pomus sylvestris*, being at the best the natural product of the roundest kernel in the firmest land, and therefore the gist of the fruit more strongly austere, fierce, & sharp, and also the fruit less and more woody; and the pleasanter or plumper and larger apple being the effect of some intensification, which inclines to a kind of rehatment of the natural strength of the tree; the best choice of kernels for stock, indefinitely, should be from the roundest wilding."

+ 0

Cider

Dr Meale says "In drawing the best is nearest the heart in middle of the vessel, as the yolk in the egg"

"That cider which drives out the cork, or breaks the bottles is called 'pot-gun drink'."

According to one Newburgh they called that "Life honey" which dropt freely out of the combs.

The Red-strake was the famous cider apple of those days

Peabody says "On Jersey, 'tis a general observation, as I hear, that the more of red any apple hath in its rind, the more proper it is for this use. Pale-faced apples they exclude as much as may be from their cider vat."

Under the oak. Evelyn says - "The dew that imparts the leaves in May, insolated, meteoric, and sends up a liquor which is of admirable effect in ruptures."

A timber tree is a merchant's adventure; you shall never know what he is worth till he be dead."

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Facts from Simoes' Annua-
itates Botanicae.

In a Chapter de Terra Habitabi-
li, I think it is, Sim. says

While the man is rooting for
acorns, he is planting acorns.

Jalicornia & *salicula* have
cockle-shaped seeds, & therefore
birds & fishes devour them for
shells, & so disperse them.

The seeds of the *Quercum*
or fern take short leaps on a
sheet of paper. [I translate
from the Latin]

The cones of the pine &
fir erect & open at first, then
downward after the flowering &
are closed all winter. but open again
in spring & drop their seed on the
ground prepared for it.

The plants thistle in his
father's garden, which other latins
sorrow did not all come up
for 10 or 20 years.

Adhaerentes.

(Calyce) *Arctium maculatum* New-
mada. *Agrimonia*. *Rhexia*. *Centa-
rea*. *Asperugo*. *Rumex*. *Urtica*. *Pari-
etaria*. *Plumbago*. *Linnaea*. *Hierbeckia*.

(Pencasus) Triumphata. Barthamia.
 Urena. Heliocarpus. Aparine.
 Valantia. Cissaca. Vicia. Calli-
 gorum. Neurada. Glycyrrhiza.
 Hedysarum. Scorpianus. Hippo-
 cypis. Aeschynomene. Petiveria. Tri-
 glochin. Craniolania. Martynia.
 Clypeola. Xanthium. (Demiue) Ver-
 bena. Blairia. Gynoglossum. Myo-
 sotis. Sappula. Dancus. Tancula.
 Canalis. Aretopus. Rubon. Raruncu-
 lus. Avena. Bideus. Verbesina. Proer-
 haria. Geum.

J. Priberg. In a treatise on the
 Oeconomia Naturae in the same vol.
 says

The Seasons.

Ne verum tempus, matutina
 hora, nostraque juvenili aetas ad
generationem quadrant. Aestas
 mendicis et virili toga cum con-
 servatione conveniunt: autum-
 nus vero, vespere et virili senec-
 tus destructioni haud inepte assim-
 ilantur.

Sporalia Plantarum

meminisse tantum visper juvat
 quod plantarum genitalia, quae
 in regno animali, utpote fere

pudenda, plerumque & natura
 absconditur, in regno vegetabili om-
 nium oculis exponuntur, et quando
 hae celebranter nuptiae, moerunt
 quantas delicias offerunt specta-
 tori, dum colore gratissimo et odore
 jucundissimo renascentur. Evidens
 quod eodem tempore & florum
 nectaris mel hauriunt apes, muscae
 atque insecta; ut trochilum ca-
 ceam, et eorum hollie effuso
 ceram colligunt itidem apes.

J. P. P. P.

He says the exercise of
 the dog is to tetra & optica that
 no insect touch it. Therefore it is
 deposited on a stone or trunk or
 some high place lest plants be
 injured by it.

The sheep will not let
 one of her two lambs run alone
 lest the other be perished. This

birds lay eggs because
 they could not carry their young
 in the womb conveniently.

Bulls show a torreum
frontem over a serene front.
 Stags shed their horns after rutting.

Thorny plants protect
 tender herbs beneath them from
 being browsed.

our walls & towers grow hard (or firm) with age. Ibid.

Bucphaga

"Bucphaga erythronucha. The beef-eater of the English, the pique boeuf of the French." draws larvae out of the hide of cattle. also the Rhinoceros-bird.

have from the Note book of a naturalist by W. J. Broderick.

Reptile Feet.

"Those who define a serpent as an apod, or footless animal, carry their definition too far. The large constricting serpents, and not only those, but ~~coryx~~ and cortrix, are furnished with ~~feet~~ rudiments of hinder extremities, which appear to have escaped the notice of Sir Edward Home, but did not escape that of Dr. Meyer." Ibid.

Pigeons

* Do not drink like most birds, but suck up the water like quakers. Ibid.

The Ature

of the Orinoco. The last family, ex-
 ited in 1767. "At the period of
 our voyage an old parrot was
 shown at Maypures, of which
 the inhabitants related that
 they did not understand what
 it said, because it spoke the
 language of the Ature."
 Humboldt's Personal Narr.

The Facial Angle

"I have thus established the two extremes
 of obliquity in the facial line, viz: from
 70° to 100° . These embrace all the gra-
 dations, from the head of the Negro
 & the sublime beauty of the ancient
 Greek models. If we descend below
 70° we have an orang outang, or a
 monkey; if we descend still lower
 we have a dog or a bird - a snipe,
 for example, of which the facial
 line is almost parallel with a hor-
 izontal plane." Camper quoted
 by Morton.

The Capacity of a Cranium.

"In order to measure the capacity of
 a cranium, the foramina were

first stopped with cotton, and the cavity then filled with white pepper seed poured into the foramen magnum until it reached the surface, and packed down with the finger until the skull would receive no more." Morton's *Crania Americana*.

Hornets

"I have seen six companies of infantry, with a train of artillery, and a squadron of horse, all put to the route by a single nest of hornets; and driven off some miles, with all their horse and bullocks." *Rambles & Japs Indian Office* Keenan.

Burning of Widows

The wife dreamed that her husband had died on the road, & began forthwith, in the middle of the night, to call out, "Sub, sub, sub!" Nothing could dissuade her from burning; she was comforted with her husband's turban in her arms, but 10 days after her husband came back. Such a one - a woman it is called a suttee. *India*

Cause of Blights

affecting the wheat crops very disastrous in their extent. Keenan's Dundee friend

¹¹²
told him "it was by most people
attributed to our [the English] frequent
measurement of the land, and in-
spection of fields, with a view to
estimate their capabilities & pay;
which the people considered a
kind of incest, and which he himself,
the Deity, can never tolerate. The land
is said to be "considered as the mother
of the prince or chief who holds it -
the great parent from whom he
derives all that maintains him -
his family and his establishments. If
well treated the yields this in abundance
to her son; but if he presumes to look
upon her with the eye of desire, she
ceases to be fruitful; or the Deity sends
down hail or blight to destroy all that
the yields!" This.

This which is apparently quoted as a proverbially
expresses a solemn truth.

Nerbudda

You must breathe in or drink of the
Ganges. "but the right of the Ner-
budda from a distant hill" can
also be purged. This

How to Cure the Blight

"In the latter end of 1831, what?"

was at Saugor, a cowherd, in driving
 his cattle & water up a reach of
 the Beose river, - - - was reported
 to have seen a vision, that told
 him the waters of that reach, taken
 up and conveyed to the fields in
 pitchers, would effectually keep off
 the blight from the wheat, pro-
 vided the pitchers were not suf-
 fered to touch the ground on the
 way. On reaching the field a
 small hole was to be made at
 the bottom of the pitcher, so as to
 keep up a small but steady
 stream, as the beaver carried it
 round the border of the field,
 that the water might fall in
 a complete ring, except at a
 small opening, which was to be
 kept dry, in order that the
 monster or demon blight might
 make his escape through it, -
 He says that when the blight appeared
 in '32 "The roads from this reach of
 the Beose river, up to the capital of
 the Orcha Rajah, more than a hundred
 miles, were literally lined with these water-
 carriers; and I estimated the number
 of persons who passed with the water
 every day, for six weeks, at 10,000 a
 day."

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The Reepul Tree

Three or four young reepul trees have begun to spread their delicate branches, and pale green leaves, rustling in the breeze from the dome of this fine temple, which "they" loom & inevitable destruction. Pigeons deposit the seeds, on which the chiefs feed, in the crevices of buildings. No other birds ^{as they are seen} fly off the heads of these young trees, and if they did it would only hasten off the evil and inevitable day; for such are the vital powers of their roots, when they have once penetrated deeply into a building, that they will send out their branches again, cut them off as often as you may, and carry on their continual attack with undiminished vigor. -- The palace the castle, the temple, and the tomb. -- The river triumphs over them all in her lofty beauty, bearing high in air amidst her light green foliage fragments of the wreck she has made, -- "Thid.

Janszyn the Singer

"Popular belief ascribes to Janszyn [the most celebrated singer they have ever had in India] the power of stopping the river Jumna in its course. His contemporary and rival Brig Borda who, according to popular belief, could split a rock with a single note, is said to have learned his base from the noise of the stone-mills which the women use in grinding the corn for their families."

Quid.

A Picturesque Village.

"Indeed? question whether it were possible for a single hand to build a picturesque village. Nothing contributes more to it, than the various styles in building, which result from the different ideas of different people. When all these little habitations happen to unite harmoniously; and to be connected with the proper appendages of a village — a winding road — a number of spreading trees — a rivulet with a bridge — and a spire, & being the whole to an apex; — the village is complete."

Crippin's Lakes of Cumberland.

A Triumphant Column
 adorning the Approach to Polesheim
 castle. "The top is crowned with the
 statue of the Duke of Marlborough,
 and the pedestal is inscribed - not
 indeed with the ~~terse~~ of a Roman
 altar - but with the ~~long~~ clami-
 cal, the more honorable details
 of an act of parliament, granting
 the manor of Woodstock & the
 duke for his 'eminent services'."
 This.

Warwick Castle

"The armor & tilting spear of
 the celebrated Guy Earl of Warwick,
 a rib of the sun cow and
 other monuments of the prowess
 of that hero, are shown at the
 'Porter's Lodge'. There remain, (the
 fictitious, no doubt,) are not in-
 proper 'appendages of the place,
 and give the imagination a
 kind of tinge, which throws an
 agreeable, romantic color on
 all the vestiges of this venerable
 pile." This.

Falls

Broken falls become a small
 stream - a regular one a large
 body of water. "Where the Niagara

thus broken, at least if some considerable parts of it were not left broad & direct, it might be a grand scene of confusion; but it could not be ~~that~~ vast, that uniform, and simple object, which is most capable of expressing the idea of greatness. This.

Beauty hard to describe

"Scenes of this kind, (however pleasing) in which few objects occur, either of grandeur or peculiarity, in a singular manner elude the powers of verbal description. They almost elude the power of colors. The soft and elegant form of beauty is hard to hit; while the strong, harsh feature is a mark, which every pencil can strike." This.

X "Moral and picturesque ideas do not always coincide" -

"In a moral view, the industrial mechanic is a more pleasing object than the toiling peasant. But in a picturesque light, it is otherwise. The arts of industry are rejected; and even tidiness, if of any use, adds dignity or character. Thus the low, cowherd

resting on his pole; or the peasant
 culling on a rock, may be allowed
 in the grandest scenes; while
 the laborious mechanic, with
 his implements of labor, would
 be repelled. The fisherman &
 "true" may follow his calling
 upon the lake: but he is in-
 debted for this privilege, not to
 his art; but to the picturesque
 appearance of it — his boat &
 his nets, which qualify his art."

"The characters, which are most
 suited to these scenes of grandeur

are such as impress us with some idea
 of greatness, wildness or ferocity;
 all which touch on the sublime."
 Figures in long, flowing drapings;
 gypsies; banditti; and soldiers —
 not in modern regimentals; but
 as Virgil paints them.

—— longis aduixi hastis, et scuta tenentes:
 are all marked with one or other
 of these characters: and mixing
 with the magnificence, wildness, or
 horror of the place, they properly
 coalesce; and reflecting the same im-
 ages, add a deeper tinge to the

character of the scene. " This.

"Memorial of the battle of Mowden-moon

"On examining it with more attention, it appeared, [the log could as he said] that great numbers of leaden bullets were in the heart of several of the trees; which thus recorded the very spot, where the heat of the battle had raged. This.

trees in the north.

At Des'co Island Orborn was surprised by the sight of "a dwarf live tree" - full 13 inches high - "the monarch of an Arctic forest!" Orborn, Arctic Journal.

An Arctic Night.

"The inhabitants of these regions, as well as the animals, retire to rest with as much regularity as is done in more southern climates; and the subdued tint of the heavens, as well as the heavy blanketing of clouds in the neighborhood of the sun, gives to the arctic summer night a quietude as marked as it is pleasant." This.

Winter - night

"For some time after the sun had ceased to visit our heavens, the southern side of the horizon, for a few hours of noon, was strongly illuminated, the sky being shaded from deep and drab red through all the most delicate tints of pink & blue, until, in the north, a cold bluish black scowled angrily over the pale mountains, which, in widowed loneliness &c, "This was at the North."

"The 'stick' of the Esquimaux in the extreme N of Baffin Bay" exceeded all bounds when each was presented with a boat. hook & staff, a piece of wood some 12 feet long. "This."

Man

"Genus 1 - Homo. Species 1 - Homo sapiens. . . . Inhabit all parts of the earth, omnivorous, disputing for territory; uniting together for the express purpose of destroying their own species." Harlan's Fauna Americana

Cat.

"prolific hybrids have been produced by the union of animals generically distinct; between the martin, (Mustela

mates) and the domestic cat." Ibid.

+ Finding water with worms.

"They wanted drink on board his ship, [King Harold Hardrada] and went up into the island to seek water; but finding none, they reported it to the king. He ordered them to look for some long earth-worms on the island, and when they found them they brought them to the king. He ordered the people to bring the worms to a fire, and bake them before it, so that they should be thirsty. Then he ordered a thread to be tied round the tails of the worms, and to let them loose.

The worms crept away immediately, while the threads were wound off from the clew as the worms took them away; and the people followed the worms until they sought downward in the earth. Then the king ordered them to dig for water, which they did, and found so much water that they had no want of it." Snoro Sturlson's Chronicle

Ancient swords

"It is a singular physical circumstance, that in almost all the swords of those ages to be found in the collection of weapons in the Antiquarian

Museum at Copenhagen, the
 knuckles indicate a size of hand
 very much smaller than the hands
 of modern people of any class or
 rank. No modern dandy, with
 the most delicate hands, would
 find room for his hand to grasp
 or wield with ease some of the
 weapons of these Northmen.
 Sanguin's note of the last.

Love
 "Affections' thoughts fly in the wind,
 And meet each other true & kind."
 Quoted by Snows.

King Eystein & King Sigurd.

There is a glorious conversation be-
 tween Eystein & Sigurd the Em-
 peror - the two brothers who
 shared the kingdom of Norway be-
 tween them. As long & quote the
 whole. Finally Sigurd says:
 "It is the conversation of all that
 the expedition I made out of the
 country was a princely expedition,
 while you in the mean time sat at
 home like your father's daughter."
 Eystein: Now you let take
 yourself to your cudgel. I would not
 have brought up this conversation

if I had not known what to say on this point. I can truly say that I equipped you from home like a vintner before you went upon this expedition."

"I said: You must have heard that on this expedition I was in many a battle in the Saracen's land, and gained the victory in all; and you must have heard of the many valuable articles I acquired, the like of which were never seen before in this country, and I was the most respected wherever the most gallant men were; and on the other hand, you cannot conceal that you have only a home-bred reputation. I went to Palestine, and I came to Apulia; but I did not see you there, brother. I gave Roger the Great the title of King; I won seven battles, and you were in none of them. I was at our Lord's grave; but I did not see thee there, my brother. On this expedition I went all the way to Jordan, where our Lord was baptized, and swam across the river; but did not see thee there. On the edge of the river bank there was a bush of willows, and there I twisted a knot of willows, which is waiting thee there; for I said this knot thou shouldst untie, and fulfil the vow, brother.

that is bound up in it."

"Eystein: This but little I have
breathed against this. I have heard
that you had several battles abroad,
but it was more useful for the
country what I was doing in the
mean time at home. On the north
at Vage I built fish-houses, so
that all the poor people could
earn a livelihood, and support
themselves. I built there a priests
house, and endowed a church, where
before all the people almost were
heathen; and on this account I think
all these people will remember
that Eystein was once king of
Norway. The road from Dronheim
goes over the Dovrefjelde, and
many people had to sleep out
of doors, and make a very
severe journey; but I built
inns, and supported them with
money; and all travellers know
that Eystein has been king in
Norway. Out at Bygdanes was
a barren waste, and no har-
bor, and many a ship was lost
there; and now there is a good
harbor & ship-station, and a
church, also built there. Then
I raised beacons on all the high
fields, at which all the people

in the interior enjoy the benefit. In
 Bergen I built a royal hall, and
 the church of the Spittle, with a
 stair between the two; so that all
 the kings who come after me will
 remember my name. I built
 Michael's church, and founded
 a monastery beside it. I settled
 the laws, brother, so that every
 man can obtain justice from
 his fellow-man. and according
 as there are observed the country
 will be better governed. I set a
 warping post and iron ring in the
 sound of Sinsholm. The Jemteland
 people are again joined to this king-
 dom, and more by prudence & kind
 words than by force and war. Now
 although all this that I have reck-
 oned up be but small doings, yet
 I am not sure if the people of
 the country have not been better
 served by it than by it than by
 your killing whomever for the
 devil in the land of the Saracens,
 and sending them to hell. Now if
 you prize yourself on your good
 deeds, I think the places I have
 raised for chaste people of God
 will serve me no less for my
 soul's salvation. Do if you will

a knot for me, I will not go to untie it; and if I had been inclined to tie a knot for thee, thou wouldst not have been king of Norway at thy return to this country, when with a single ship you came into my flock. Now let men of understanding judge what you have above me, and you will discover that here in Norway there are men equal to you." Thereupon both were silent, but there was anger on both sides.
 Snorro.

Oestrus bovis. & *O. ov*

"At certain seasons the whole terrified herd, with their tails in the air, or turned upon their backs, or stiffly stretches out in the direction of the spine, gallop about their postures, making the country re-echo with their lowing, and finding no rest till they get into the water." The *Oestrus* make "merely the oviposit in their hides." v. Virgil. When oxen are employed in agriculture, the attack of this fly is often attended with great danger, since they then become perfectly unmanageable;

and, whether in harness or yoked to the plough, will run directly forward. At the season when the Oestrus infects them, close attention should be paid, and their harness so constructed that they may easily be let loose." "The common saying that a whimsical person is maggoty, or has got maggots in his head, perhaps arose from the fact that the sheep have been observed to exhibit when infected by their bots."

Kirby & Pence 1815.

Honey-ratel.

"Sparman has given an amusing account of the Honey-ratel, (*Viverra zibethica*), which has a particular instinct enabling it to discover bees, and attack them in their outposts. Near sunset, the ratel will sit & hold one of his paws before his eyes, in order to get a distinct view of the object of his pursuit; and when, in consequence of his peering about in this manner, he sees any bees flying, he knows that at this time of the day they are making for their habitations, whether he follows them, and so attains his end." *Ibid.*

Sparman, 11. 180.

Ephemerae

"The season of different hatches is not better known to the farmer, than that in which the Ephemerae of a particular river are to emerge, is to the fisherman. — — — Between the 15th & 15th of August is the time when those of the Seine & Marne, which Reaumur describes, are expected by the fishermen who call them 'Manna'."

Reaumur describes a flight he observed in 1738 at evening. "When the snow falls with the largest flakes says he", and with the least interval between them, the air is not so full of them as that which surrounds us now of Ephemerae. Scarcely had I remained in one place a few minutes, when the step on which I stood, was quite concealed with a layer of them from two to four inches in depth. "e e e e" they came out of the earth. The fisherman allow 3 days for them to come out. they are food for fishes. This

Bee-Cuckoo (*Coccyus indicator*)

Sparrman describes this bird, which is somewhat larger than a common sparrow, as giving this information in a singular manner. In the evening & morning, which are its

most times, it excites the attention of the bumblebees, colletes, and honey-eaters, by the cry of sherr, sherr, sherr, and conducts them to the tree or spot in which the bees' nest is concealed, continually repeating this cry. When arrived at the spot it hovers over it; and then alighting on some neighboring tree or bush, sits in silence, expecting to come in for its share of the spoil, which is that part of the comb containing the brood."

Sparrman II. 186 This

Bees

"Columella says that the Greeks in like manner sent their bee-hives every year from Achaia into Attica; and a similar custom is not unknown in Italy, and even in this country in the neighborhood of Meath." This.

The Inago State.

"These insects in their perfect state, though furnished with organs of feeding, make no use of them, and consume no food whatever. Of this description are the moths which proceed from the silkworm, and several others of the same order; - "Indeed it may

most times, it excites the attention of the bumblebees, colletes, and honey-eaters, by the cry of chern, chern, chern, and conducts them to the tree or spot in which the bees' nest is concealed, continually repeating this cry. When arrived at the spot it hovers over it; and then alighting on some neighboring tree or bush, sits in silence, expecting to come in for its share of the spoil, which is that part of the comb containing the brood."

at 100, and I want to go too."

St. Louis Democrat July 26, '89
A SHOWER OF FLIES. A recent number of the

"On the down trip of the steamer Editor in the Illinois, the other night, at 9 o'clock, a shower or stream of the Mormon or Shad fly poured upon her decks to the depth of six inches, and it was a very difficult matter to shovel them overboard. They were so numerous as to put out the watchman's light and envelop everything in midnight darkness. The trees along the shore look as if come down by these short-lived insects. The visitation is said to prognosticate a sickly season."

Spamman 11-86 This

[Reverse]

LOCAL TRAVEL
Leave Portland for Black Pond 1:30 PM.
Leave Black Pond for Portland 4:00 PM.
Leave South Pass for Portland 4:10 AM.
The Company are not responsible for baggage amount exceeding \$50 in value and that person's baggage is given and paid for at the rate of one pound every \$50 additional value.
S. F. CORSEY, Superintendent
For tickets, apply to the Portland & Maine, and California Depot, and the Portland Steamers, Central what.
Rate of freight and any other information, apply to the Portland & Maine, and the Portland Steamers, Central what.
JOSEPH HEDGECOCK, General Agent for Black Pond.

year from
and a similar
in Utah, and even
the neighborhood
to Africa;
is unknown.
in country in
leather." This.

The Inago State.

"Were insects in their perfect state, though furnished with organs of feeding, make no use of them, and consume as food whatever of this description are the most which proceed from the with-worm, and several others of the same order; - "Indeed it may

be laid down as a general rule, that almost all insects in this state eat much less than in that of larvae. The voracious caterpillar when transformed into a butterfly needs only a small quantity of honey; and the gluttonous maggot when become a fly contents itself with a drop or two of any sweet liquid.

"Many caterpillars eat daily ^{this} twice their weight of leaves." ^{this}

Spider

"The Rev. R. Meppard has often noticed in the fen ditches of Norfolk a very large spider which actually forms a raft for the purpose of obtaining its prey with more facility. Keeping its station upon a ball of weeds about 3 inches in diameter, probably held together by slight withered cords, it is wafted along the surface of the water upon this floating island, which it quits the moment it sees a drowning insect." ^{this}

Temple

Among Chinese characters a house and heart is the symbol of a temple. ^{Kraitser's Nature of Man.}

Runes

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The Norse Runes were originally 16.
 The 3rd was "Dass; Thor-u, mountain-spirit."
 "12" " " "Tyr; L. Taurus, bull; giant Thurs."
 The first sound of their names is their character.
 This.

Irish Language.

One of the two kinds of writing in the Irish, agrees with our alphabetic series & contains but 18 letters
 i.e. Ailm, arms, palm; Beith, beech, shelter, goat; Coll, hazel, food; Duir, oak, God (hence Druid, Lr. Spūs oak; comp. Engl. Tree); Eadad, aspen, timid; Fearn, alder, barren; Gort, ivy, growth; Ioga, dead, yaw; Luis, quick-beam; Muin, vine, juice; Nuin, ash; On, or Oin, bloom; Peith, dwarf elder; Ruir, bore-tree-elder; Suih, willow (L. salix); Tuir, furze; Ur, cypress, wealth; Beath, hawthorn. To these are added, Quert, 'apple-tree'; aNsalt (nasal ng), reed; and Zegthrog, 'sloe-tree.'
 This.

Ants

"Their labors are going on even in the night. — Zethen is a certain fact. — Long ago Aristotle affirmed that ants worked in the night when the moon was at the full; [Hist. Animal. l. ix c. 38.] Gould their historian Huber — & Kirby & Mene make some species work at night

whether the moon shines, or not.

Kirby & Spence's Entomology.

Wasps

"They - all perish, except a few of the females, who are proof against frost." This

Anticote in the eyes of plants.

"I have the place he appears to think that the workers [bees] are hermaphrodites: - his words are remarkable, and seem to indicate that he was aware of the sexes of plants: 'having in themselves,' says he, 'like plants, the male and the female.'" This

Bees

"The 2. authors who have given the clearest & most satisfactory account of them, Reaumur and the elder Deber;" This

Habit-

"The Egyptians who went bare-headed, had their skulls remarkably thick. While the Persians, who covered the head with a turban or mitre, were distinguished by the tenuity of theirs." This

Creation of Queen-Bee

and in this quote John Hunter for the fact that "When a cow brings forth

two calves, and one of them is a female, it is always barren, and partakes, in part of the character of the other sex." (Kirtz Shence's words) again "women in advanced life are sometimes distinguished by beards; and after they have done laying, hen-birds occasionally assume the plumage of the cock!"

Bees

"Bees, of all ages, unite & form the swarms. The numbers of which they consist vary much. Reaumur calls 12,000 a moderate swarm; and he mentions one which amounts to more than three times that number (40,000)."

"The principal object of the bees [in their excursions] is to furnish themselves with three different materials: the nectar of flowers, from which they elaborate honey & wax; the pollen or fertilizing dust of the anthers, of which they make what is called bee-bread, serving as food both to old & young; and the resinous substance called by the ancients *Propolis* and *Pissoceros*, &c. used in various ways in rendering the hive secure and giving the finish to the combs. The first of these substances is the pure fluid secreted in the nectaries of flowers."

The bee laps this up with its tongue, passes it to its mouth & thence it goes to its first stomach called the honey-bag. (Know not how the wax is made.) "It goes into the honey-bag as into a laboratory, where it is transformed into pure honey." This is exactly stated into the cells. Long before Linné had discovered the nectary of flowers, our industrious creatures had made them self intimate with every form & variety of them; and no botanist, even in this enlightened era of botanical science, can compare with a bee in that respect. The station of these reservoirs, even where the armed sight of science cannot discover it, is in a moment detected by the microscopic eye of this animal.

"Aristotle says that in each journey, from the hive, bees attend only one species of flower;" Reaumur thinks otherwise. But some other moderns agree with Aristotle. The bees seem to eat the pollen as they find it. As for the propolis they draw from certain buds like the *populus balsamifera* before expanding. Threads of the viscid matter with which they are besmeared. "This is an old discovery, confirmed by recent observation." Bees will go a mile for honey; Huber says half a league.

Even H & S refer to the account in "the Phil. Trans. for 1721, of the method practised in New England for discovering where the wild bees &c &c"

"How long our little active creature repose before they take a second excursion I cannot precisely say." "Reaumur observes, that in a hive the population of which amounts to 20,000, the number that enter the hive in a minute is a hundred; which, allowing 14 hours in the day for their labor, makes 14,000. Thus every individual must make four excursions daily, and some five."

"It is a saying of bee-keepers in Holland, that the first swallow & the first bee foretell each other (Swann.) This perhaps may be correct; but with us the appearance of bees considerably precedes that of the swallow; for when the early crocuses open, if the weather be warm, they may always be found busy in the blossom."

"Thorley tells us that a warm took possession of a spot under the lead of the study of Ludovico Vives in Oxford, where they continued a hundred & ten years, from 1520 to 1630."

"Linné named another species [of bees] florissimus from its dazing in flowers, canhamia

Spectre Tube

"The Spectre Tube (*Phasma*, Licht.) goes still further in this mimicry, representing a small branch with its spray." - The one species "the natives of Chili call The Devil's Horse."

Froth on Plants

"The white froth often observable upon rose-bushes, and other shrubs & plants, called by the vulgar frog-spittle, - but which, if examined, will be found to envelop the larva of a small hemipterous insect (*Cicada Neumana*, L.) from whose anus it exudes, although it is sometimes discovered even in this concealment by the indefatigable wasp, and becomes then prey, - serves to protect the insect, which soon dies when exposed, not only from the heat of the sun and from violent rains, but also to hide it from the birds and its other foes." Whit

Formic Acid

"The effluvia produced by this acid are so subtle and penetrating, that it is impossible to hold your head near the nest of the hill-ant (*Formica rufa*, L.) when the ants are much disturbed, without being almost suffocated."

Cater' worms

Maybe may-flee some (*Phryganea*) some at least. Their cases being open at the ends, to admit water - they have a grate or portculis to keep out enemies when torpid.

Eggsparner

"That night occasionally noticed in fine days in the autumn, of webs - commonly called gossamer webs - covering the earth and floating in the air." - "It was an old & strange notion, that these webs were composed of dew burned by the sun.

"... The fine nets which oft are woven see of scorched dew,"

says Mervin. - - - - - One of the first fellows of the Royal Society, Robert Boyle, the author of *Micrographia* - says - "Much resembling a cobweb, one confused look of these cylinders, is a certain white substance which, after a fog, may be observed to fly up and down the air." He examined them with a microscope and found them "most like to a flake of worsted prepared to be spun;" - & says - "It is not unlikely, but that those great white clouds, that appear all the summer time, may be of the same substance."

The French call them *Fils de la Vierge* many of them at least have "air-balloons" of spiders. Even Henry Moore the poet

suspects they may be "The field-Midens' loom".

Showers of these webs in flakes nearly an inch wide & 5 or 6 inches long have fallen a whole day in England ac. &c. White.

"In Germany these flights of gossamer appear so constantly in Autumn, that they are there metaphorically called 'Der fliegender Sommer' (The flying or departing Summer):" This

Dragon-flies (Libellulidae)

"Without turning the can fly in all directions - backwards and forwards & left." In one instance a swallow could not catch one of this tribe in a managene 100 feet long. This

Ephemerae

"It is still more extraordinary that these Ephemerae - which appearing after sunset, and dying before sunrise, are destined never to behold the light of that orb - should have so strong an inclination for any luminous object."

Swiftness of Insect.

It is remarkable that the smaller Tipulidae will fly unmetted in a heavy shower of rain, as I have often observed. How keen must be their sight, & how rapid their motions to enable them to steer between drops larger than their own bodies, which if they felt

upon them, must dash them to the ground! ^{139"}

Glow worms &

Glow-worm (*Lampyrus noctiluca*) -
 "stars of the earth and diamonds of the night." & I say "studding their mossy couch with mild effulgence." Chiefly observed in the most glorious & balmy evenings. "It is not however the larva of an insect, but the perfect female of a winged beetle, from which it is altogether so different" as hardly to be believed. The light of the males much less vivid.

"Mr White even thinks that the regular but it out [the light of the female glow-worm?] [Nat Hist. II. 279] between 21 & 12 every night: and they have also the power of rendering it for a while more vivid than ordinary.

"In travelling at night the [the natives of St Domingo] used to tie one [of the cucurbit] beneath great trees and in fishing & hunting required no other flambeau. Fact from Pietro Martire. Quoted in Madoc. This

Igneus fatui

"the very obscure subject of ignes fatui."
 - "there is considerable ground for the opinion long ago maintained by Ray & Willoughby, that the majority of these supposed meteors, are no other than luminous insects."

Aphis

Speakers of the *A. Betulae*. Their eggs are hatched on the birch in the spring. Their wings have dark bands - Another species of *A.* ^{with dorsal black spots} on a birch was hatched as soon as the leaves began to expand on which they feed.

Winter quail

"A bright sun imparted animation & frosts of the winter quail (*Trichocera hiemalis*, Meig.), which picked under every bush." 2 Dec.
"The quail whose choral dances have been before described, may be constantly seen gambolling in the air in the depth of winter when it is mild & calm, accompanied by the little *Psychodae*, so common in windows," & others.

Freezing of Caterpillars, &c

Sister first noticed that caterpillars might be frozen so as to retain their vitality when let fall & yet revive. Bonnet found that they - "yet produced butterflies." (K & S words) Hunter thought he believed did not know from experience this fact with regard to fish. - could not discriminate them.

Insects in Spring

In the early Spring of 1805 they were "generally out by the middle of March." but in the "outward Spring" (1816) I did not observe even a bee abroad until the

20th of April; and the first butterfly that I saw did not appear until the 26th. - "The remarkable fact which Spallawani has noticed, that insects reappear in spring at a temperature considerably lower than that at which they retired in autumn."

Ball Beetle

"It is the instinct of *Scarabaeus vernalis* to roll up pellets of dung, in each of which it deposits one of its eggs -"

Bees Again

"Even if a cloud pass before the sun, the return of the bees in the greatest haste" ac. to Huber. "When bees have found the direction in which their hive lies, Huber says they fly to it with an extreme rapidity, and as straight as a ball from a musket" (p. 364)

Also ac. to Huber. i.e. the fact. "If a hive be removed out of its ordinary position, the first day after this removal, the bees do not fly to a distance without having visited all the neighboring objects. The queen does the same thing when flying into the air for fecundation"

Bees Again (?)

"M. Reingold mentions an instance where, in a public library, but little bee-

quented, 27 folio volumes were perforated in a straight line by the same insect (probably one of these species [Anobium]), in such a manner that, on passing a cord through the perfectly round hole made by it, these 27 volumes could be raised at once.

Water insects

"The little beetle, called whirlwings (Gyrinus, &c) - - - - - seem to be under the influence of the social principle." Among insects that walk on the water he mentions "the water-walker (Nepa)" & the aquatic bugs (Gerris lacustris, Hydrometra stagnorum, Velia rivulorum, &c.,).

Now Flea. Concord name a tube "found often under bark, sometimes in the water" &c "which Linne has named podura, a term implying that they have a leg in their tail. This is literally the fact." "There is a minute black species (P. aquatica, L.) which in the spring is often seen floating on that [water] contained in ruts, hollows, or even ditches, and in such infinite numbers as to resemble gunpowder strewn upon the surface." "one of the few insects which do not seem even to be torpid." The line here perhaps another. Kirby & Thoms.

Derivation of Words

Richard Chenevis Trench -

Sierra Mon. for snow

Tribulation separating the chaff from the wheat.

Retract - handle over again - reconsider.

Pain - poena - or punishment

Heathen "at the introduction of Christianity into Germany, the wild dwellers on the heath" longest resisted the truth." Like Pagan.

Miscreant - from Crusaders hating infidels.

Potlroom - potlice truncus (?)

Craven who has craven his life

Rotthumous should not have the h being not just humum but representative of porticus. ~~best~~.

Sur - or super-name - name over & above not sire - name

Stemfast originally like steadfast

Stipulation from stipula (?) "Became

if once was usual, when one per-

son pined over landed property to

another that a straw from the

land, as a pledge or representative

of the property transferred, should

be handed from the seller to

the buyer, which afterward was com-

monly preserved with, or inserted in

the title-deeds." ^{and etiological}

Disaster - accumbant influence

philosopher - before Pythagoras
 they had called themselves & been
 called wise men.

Essay Bacon applies it as a novel
 word to his. Essays

Prime of the garden & prime of the mind are
 word. diff. applied.

Detest bear witness against.
 Felicitate - without sympathy but first
 congratulate

The bount - The heart.

Strong - past participle of 'to strong' was
 strong.

will past participle of 'to will' - roll will.
 to stick makes stuck or stock.

Stories or stageries of a house
 Scruttor on who is a circus leaves from
 "the back of one running horse
 & another."

Hawk - hawoc(?)

Raven makes ravenous.

Field for belled opposed to forest
 hence wood & field.

Amusement - a music away from study

Marine Algae
by W^m Henry Harvey. 1851

Of the atmosphere dust "on the rigging
of ships far out to sea" says Hunt
Dr. F. Cohn, Ehrenberg, rather "now
as a bit of evidence of the existence
of organic life in the air itself."
"The air itself as the proper abode
of this singular fauna & flora, - for mi-
nute animal would seem to accompany
and doubtless feed upon the vegetable
atoms."

Where water lies long on the sur-
face of the ground, as happens in cases
of floods, it quickly becomes filled
with Confervae or tick-weeds, which
rise to the surface in vast green mats.

We see a counteractive effect of decaying
vegetation - "When the water evaporates,
their filaments, which consist of delicate
membranous cells, shrivel up & become
dry, and the stratum of threads, now
no longer green, but bleached into
a dull white, forms a coarsely inter-
woven film of varying thickness, spread
like great sheets of paper over the decaying
herbage. This natural paper, which has
also been described under the name
of water flannel, sometimes covers
immense tracts, &c." - "green within threads"

that both in salt & fresh water -

"These threads cannot grow without emitting oxygen. If you examine such a pool on a sunny day, you may trace the heads of oxygen on the submerged threads, or see the gas collect in 'bubbles' where the threads present a dense mass."

"Very few other plants [than algae] vegetate in the sea, sea water being fatal to the life of most seeds; yet some notable exceptions to this law (in the case of the coconut, mangrove, & a few other plants) serve a useful purpose in the economy of nature."

"Probably one half of the species of Algae of the east coast of North America are identical with those of Europe - a very large portion when we contrast it with the strongly marked difference between the marine animals of the 2 shores - - - "The European species on the same length of coast, are greatly the more numerous, which appears to be owing to the prevalence of sands, nearly destitute of Algae, along its greater length of the American shore, and particularly along that portion which, from its latitude, cannot produce

the greatest variety of Algae, were the local circumstances favourable to their growth.

An instance of overgrowth - of the common Fucus or Rock Kelp - there are 6 very common species in North Europe beside some rarer ones - but of these only 2 - *Fucus vesiculosus* & *Enteromorpha* are commonly dispersed here.

The number of species of marine plants that are not algae proper is extremely small. These on the American Coast are limited to less than half a dozen, only one of which, the common Eel Grass (*Zostera marina*), is extensively dispersed.

Laминария

"The plants commonly known as Seaweed, Tangle, Devil's Hair, Riband-weed, Wet-leather-kelp, &c. belong to this genus, which is more numerous here, and possessed of a wider geographical range than any other of the Order. With the exception of *Sargassum*, which is only a few inches long, they are all plants of a large size, varying from 3 or 2, or 20 feet in length. They commence to grow about low-water mark, and descend, beyond that limit, to the depth of 5 or 10 fathoms. The Neurocytis of the N.W. Coast is said when fully grown to have a stem measuring

300 feet in length, which bears a not
nearly a huge air vessel, 24 or 25 feet
long. - - - Here the sea otter has
his favourite lair, - - - This is exceeded
by the *Macrocytis*, whose stems are
calculated by Dr. Hooker occasionally
to reach 400 feet, while Prong St. Vincent
attributes to them a length of 1500 feet.
- - - The longest vegetation that we know of.

The crumpled of some cast ashore
on the Falkland Islands, resembling
sift-wood; "on one occasion,
(as related by Dr. Hooker) no persuasion
could prevent the Captain of a brig
from employing his boat's crew, during
2 bitter cold days, in collecting
this incombustible wood for fuel."

One species, the trumpet-weed of the
Cape of Good Hope by the native herds-
men is formed into a trumpet for col-
lecting the cattle at evening.

In Scotland knife handles are made of
L. digitata. The blade, being stuck into
the hollow stem which is then - - -
tipped with metal. Ours is probably

Laminaria longicornis

"In deep water, from 5 to 10 fathoms (or more?),
very abundant on the Am. shore, from
Greenland to Cape Cod. - - - "It is by far
the most abundant species on the northern
coasts, and gradually diminishes, in the
number of individuals, and in the size
and luxuriance of growth, as it extends

southernmost. In Boston Bay it is still plentiful, though of much smaller dimensions than at Halifax, where it is the chief ornament of the submarine flora. I have seen no specimen from a more southern locality than Cape Cod; but Mr. Chaunin is said to have received it from the Bahamas. In Europe it is scarcely known & grows beyond the limits of the Arctic Sea, whence water-worn specimens occasionally reach the coasts of Scotland, and of the north of Ireland.

"The Game
of the U.S. & British Provinces"
"List of H. W. H. West for"
"Field Notes."
N.Y. '49

"The Bison, *Bos Americanus*, peculiar to N. Am.
The Rocky, or Sheep, or Mountain; and
The Am. Antelope, or Pronghorn."

"Of the Deer there are 5 varieties, found
in the Territories of the U.S. and the Provinces,
viz - The Moose, *Cervus Alces*; [original *Charadrius*
[black, [red, [gray, [brown]
The Elk, *Cervus Canadensis*; (Hag, Red deer, Gray moose,
the Caribou, *Alces*, [Biche, [Hydropis, [the elk, [round horn, [like [the
the Common deer, *Cervus Virginianus*; and
The Blacktailed deer, *Cervus maculosa*.
"Of the Hare there are 2 varieties known

on this Continent:

The Common Hare - vulg. Rabbit - Lepus Am.; "

The Northern Hare, Lepus Virginianus.

Of the Bear also there are 2 varieties:

The Common Brown Bear; Ursus Am.; &

The Grizzly Bear, Ursus, Horribilis."

The Wild Turkey. Meleagris Gall. parv.

The Common Am. Quail, Ortys Virginia
and 5 other species found in
Oregon & California. "

If Grouse there are 10 species ^{of which} 3 of which
3 of which are found in the State, viz
"The Common Ruffed Grouse, Tetras Umbellus;
the Pinnated "the Heath Hen, Tetras Cupido,
The Canada Grouse, or Spruce Grouse, "Canadian"
Perhaps also the Willow Grouse
The 2^d is nearly exterminated in these parts.
There are all the Land birds

proper -

"The Common Am. Coot Fulica Nigra" 2. Aut.

3 Rails 1st - Rallus Virginianus

2^d Clapper Rail - vulg. Meadow, or Mud, Hen -
Rallus Coptitans

3^d The Common Tora Rail, " Carolinus,
killed abundantly on Delaware & Aust.

of Tattlers

1 The Upland Plover, Gray Plover, & the other Bird

Totanus Prateramiad

- 2 Semi-palmated Nipe, or Willet, *T. semipalmatus*
 3 Whistling Tattler "*macularius*
 4 Yellow Shank, Tattler, Sem. Yel. Leg. "*solitarius*
 5 Yellow Shank, Tattler, Sem. Yel. Leg. "*flavipes*
 6 Tattler Tattler, Greater Yel. Leg. "*vociferus*
 7 Green-shanked Tattler. *T. glottis*.

One species of Godwit

the Great mottled G. or straight-billed Curlew

Senioza Pedoa

"The 4th Genus, *Pedopax*, has 3 species known Henry Johnston; 2 his most chosen game."

- 1 Wilson's Nipe - vulg. Eng. Nipe *S. Wilsonii*
 2 Red-breasted " " Quail " "*novboracensis*
 3 Am. Woodcock *S. minor*

Of the Anser, - Kitts - & Curlews - he allows us each -

"The 2nd genus of this family (Anatidae) Anser, Goose, gives us 4 species, though 2, the 3rd & the 4th, are far from common. The 1st & 2nd are readily the best of our sea fowl."

- 1 The Canada Goose - vulg. G. Anser. Canadian
 2 " Bramble " "*leucophaea*
 3 " The Brant Goose Brant " *bernicle*
 4 The White-bellied " "*albifrons*
 5 " Snow " "*hyperborea*

Of 2 more, only
 Cygnus Americanus in E. States.

- "Anas, Duck contains 10 species, even, we think, with the exception of the 4th, is well known to all sportsmen; they are of the finest quality for the table, and preferable to all others, with the exception of the Canvas Back, and perhaps the Red Head."

1	The Mallard - Vulg. Green Head	Anas	Brosche
2	" Dusky Duck " Black D.	"	Obsoleta
3	Gadwall	"	Strepera
4	Brewer's D	"	Brewer's;
5	The Am. Widgeon,	"	Am.
6	" Pintail D	"	Acuta
7	" Wood D	Memme D.	"
8	Am Green-winged Teal,	"	Thoussa
9	The Blue winged "	"	Carolinensis
10	" Shoveller	"	Discors; and
		"	" Chyphata "

"The 5th genus Fuligula, Sea Duck, contains 16 species, several of which are well known, and the 2 first prominent above their race."

- 1 The Canvas Back
- 2 " Red Headed
- 3 " Scaup
- 4 " Ring-necked
- 5 " Ruddy
- 6 " Pied
- 7 " Velvet
- 8 " Surf
- 9 " Am. Scoter

- 10 The Eider
- 11 " Golden Eye
- 12 " Puffin Beaked
- 13 " Harlequin
- 14 " Long tailed
- 15 " King
- 16 " Murre

"The 6th genus Mergus, Merganser, contains 3 well known species, ^{which} commonly shot & of rare beauty, are all nearly worthless as articles of food, so rank & fishy in their flesh."

- 1 The Goswinder - Mergus ^{Mergus} Merganser
- 2 " Red-breasted Merganser ^{Mergus} Merganser
- 3 " Hooded ^{Mergus} Merganser

Spring snipe shooting begins as soon as the ^{young are hatched} first pair, and of the ground, summer woodcock shooting begins with July - before the young are many & grown.

"With the end of July, all that can properly be called shooting, or a genuine sport, is at an end. The woodcock, at this season, is no longer to be found, where he is lying perched on the nut top, or off on a wilder crag for the far north. The snipe has not yet begun to return from his arctic breeding places; the Quail is still busy with her eggs, or her fledgling chickens, and the Puffed Grouse, although her young are already $\frac{2}{3}$ grown, is protected by the game laws, until the 1st of November."

now then from the Upland Plains

"It is shot in the Eastern & Middle states from Mass. & Penn. during the months of Aug. & Sept. and in fact until it is driven southward by the frost."

Generally Woodcock
begin to return about the mid. of Sept.
& snipe about the 1st of Oct.

Quail - Buffed Grouse - & Quail
in the Fall

Thus far his Upland Hunting.

Under "Hunting Nomenclature"

Grouse, before they can fly, brood.
" afterward, pack

Quail, berry.
Woodcock, brood.
Snipe, brood.

" For large flocks of wild-fowl we say:

Wrens, a whitewren
Geese, a gaggle
Brant, a gang
Ducks, a team, - smaller number, a plump
Indigo, a company, or trip
Teal, a flock
Snipe, a whisk.

Grouse } several hatchings united, a pack
Pheasant }
Quail }

"The young, not full-grown, of Grouse, are cheepers, of Quail squeakers, of Wild-duck flappers."

"The terms Stag or Hart & Hind are applied to the Red Deer. Buck and Doe follow deer. The Deer of America is nearly akin to the Red Deer! hence Buck & Doe are wrong."

of Grouse - Quail - Hares, 2 are a brace, 3 a leash.

of woodcock. Turkeys - Wild-park full birds. Plover & Shore birds, 2 are a couple, 3 a couple & a half.

2 Hawks, Harriers & Scagles, are a couple, 3 a bundle.

2 Pointers - Setters, Mammals, Grey hounds, Terriers, are a brace - 3 a leash. "All other dogs, are reckoned numerically - also large game quadruped or bird."

A pack of hounds, is 5 to 20 couple.

"When a Stag breaks cover the cry is 'tallyho!' " * fox " " tallyho! whoop!"

" " Hare found sitting with harriers, tatters, " " " " Greyhounds, who!"

"A horse never runs; he walks, ambles, trots, paces, canters, gallops. These are all his paces." "The female of a fox is a vixen; of a dog, a bitch, not a stut:-

Ova of Frogs & Toads.

"The copulation of frogs & toads is performed in the same manner. The spermatic fluid is poured upon the ova at the time they are expelled from the female. The ova of the frog are laid in conglutinated masses; those of the toad, in long chain-like strings. The ova of the latter are also much smaller." — — —

"The beautiful spotted chains that are often seen in pools in spring, as if looped over each other, are then [the toads] ova newly deposited." Sir J. M. Gardiner
Note to White's Volume

"I lay ^{Hunter & Harding} down as a maxim in ornithology, that as long as there is any incubation going on, there is 'more'." White.

Cold in England

While says that in Jan. 1776 "just before sunrise" — "the ~~temperature~~ quicksilver sunk exactly to zero, being 32 degrees below the freezing point — a most unusual degree of cold this for the month of England!" (his point) on the
10th of Dec. "Dolland's glass went down to one degree below zero!"
He accordingly recused in apple rotation &c in the cellar but his neighbors took

then such precautions not being commonly necessary. The last could be says executed in its effect, "any since 1739-40." White

begin of the season

"From a passage in the Birds of Antiquaries, we learn that among the Greeks, the crane pointed out the time of sowing; the arrival of the kite, the time of sheep-shearing; and the swallow the time to put on summer clothes. --- See Fillingfleet Tract on Nat. Hist, p 234. - "Midford" [Note to White.]

water-bug

Limex linearis is translated "the long water-bug" in note to White.

oaks

White says that what "is deemed by Mr. Marsham to be the biggest [oak] in this island, at 7 feet from the ground, measures in circumference, 34 feet."

"Mist, called London Smoke."

"This is a blue mist, which has somewhat the smell of coal-smoke, and as it always comes to us with a north-east wind, is supposed to come from London. --- When such mists occur they are usually followed by dry weather." White.

"Honey Dew

is the exuviae of insects. They are little green aphides and harbor under the leaves of trees, from whence their dew is dropped on the leaves below. This is collected by bees & ants; Ed. Ferrie; note & White.

Nuthatch & crows -

"The nuthatch hides nuts as crows do acorns. Magpies, ravens, & other nut birds" do likewise. R. C. Norman. Note & White.

Elements of Ornithology

by
Charles Brooke.

Proctor. 9 Munroe - St. '47.

A bird's power of flight depends upon the length of the primaries, or quills, & the hand.

Among the swiftest birds are the Fugite, Falcons, Condors, and Swallows. [and as some author the Pratincole]. - The Condor & Albatross have the largest wings being from 11 to 2 feet spread."

"In the greater number the female differs from the male by color less vivid, and the young of both sexes then resemble the female."

"All birds, which are a year older in acquiring their permanent plumage, breed before that is required."

"Birds which must shed their living on the wing, shed 2 feathers of their wings at the same time, one from each wing, thus keeping the balance exactly adjusted."

"Nature guards a particular bird's breakfast on every side but one, and that bird only can come at it upon the unguarded side." e.g. the woodpecker.

Among those which build

cold and slender nests, the male does not assist in incubation; while those on the contrary, whose young have no down, construct warm nests, and the male does assist."

"The Eagle has but 2 [eggs] one of which is a male and the other a female." Then I write perhaps the same the case with pigeons.

The common hen has sometimes laid 100 eggs in one nest. will lay per month of the year only one egg.

"It is said that the roundest eggs contain males, and the longer ones females."

"The young bird has on the tip of its beak a horny point, which serves to break the shell, and which falls off a few days after birth."

"The habits of the European Cuckoo and Cow-Bunting, in confiding their young to foster-parents, belong to other birds."

The Bob-o-links "come north in pairs & return in flocks."

"The no. of species of birds already known is about 5000."

"The Classification of Currier seems to have the most authority, which divides all the birds in to the six following orders;

Birds.

Tomtacket, whose
nest was found
empty for many
days, having

Quack, whose
nest was found
empty

Taken according to song, and last
found in the nest; the nest was empty.

Orders
Acipiter
or
Bird of Prey

The middle of the nest
was empty, and the
nest was empty.

Back of the nest
was empty, and the
nest was empty.

Struggle the bird
backward, & 3 forward.

Pernice,
or
Mourning Dove

Yellow or moustache and a white
wing, partly covered by a red, & a
black band; the bird was empty.

Colaptes,
or
Bridling.

Working, the birds being very long,
and the lower half of the nest.

Colaptes,
or
Bridling.

Working, the birds being hollow,
with legs short and placed
far back on the body.

Colaptes,
or
Bridling.

"The names used in Zoology to distinguish the dif. parts of the animal kingdom, are Divisions, Classes, Orders, Families, Genera, Species & Individuals."

"The Animal Kingdom is arranged in 4 great Divisions: 1st, The Vertebrates; 2nd, The Arachnids, or Articulate Animals; 3rd, The Molluscan Animals; & 4th, The Zoophytes."

The 1st Division is divided into 4 classes

"1st Mammalia; 2nd Birds; 3rd Reptiles; 4th Fishes."

The Birds are divided into 6 orders as on last page; orders into Families as Accipitres into diurnal & Nocturnal birds of prey. Then Genera as the Eagles - then Species - then Individuals.

"These birds [diurnal birds of prey] come to their growth in 4 years, and as their plumage is each year more advanced, one bird during this time may appear to belong to 4 different species."

The Falcon. The 2nd & most numerous division of the diurnal birds of prey number about 230 species. Except in the young their eye grows project, unlike the vultures. The female is generally $\frac{1}{3}$ larger than the male."

The Cherry Bird is not regular in its appearance at any given place."

Swallows return in the following order: 1st the Bank-Swallow, then the White-bellied, then the Purple Martin, then the Barn, and lastly the Chimney-Swallow.

"It [the song-sparrow] salutes us even before the Rose or Blue-Bird. Its note & earnest talk resemble the Canary's, and they are continued through the summer, because this bird raises 3 broods a year, 6 in the first, 5 in the 2^d, & 3 in the 3^d brood."

The European King-fisher or Halcyon of the ancients. It was believed that its nest was made of fish-bones & glue, and that this nest was placed by the bird on the sea at a time when it would be calm for 14 days, which time would be long enough for incubation. On this account these 14 days obtained, from this bird, the appellation of Halcyon-days.

Ducks.

"We have 26 diff. species in the U.S., 16 of which are sea ducks, and the rest frequent ponds & lakes. - One character in the plumage of most of them is a patch upon the secondary quills, & this is

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colors in the different species, but with a sort of metallic lustre; and others called the 'speculum', and also the 'wing spot', or the 'beauty spot'."

Aurora Borealis

Dr. & Humboldt. "The last of magnetic storm." Seen within the tropics. "A self-luminousness of the earth, a light-development of the planet, in a word an earth-light in opposition to the sun-light." The planet Venus also phosphoresces on that side not illuminated by the sun. — "There are other forms of terrestrial light. Humboldt includes among them the yet unexplained weather-lights, the dry luminous fog of 1783 & 1831, the steady light of large clouds which Rozier & Baccarier observed, the bright nights of autumn & winter, &c."

Juliette Bauer's copy
Humboldt.

"The exudation of ice from the stems
vegetable and the protrusion of icy columns
from certain kinds of earth."

A paper was read on this subject by Prof.
John Le Conte at a meeting of the
Am. Association at Charleston. He observed
it on the sea coast of Georgia in Nov.
1848 especially about 2 species of plants
Protea bifrons & *P. campochorta*. In
the first clear frost weather in Nov. & Dec.
when the earth is warm & there is con-
siderable dif. between the temperature of
the day & the night. He says the frost
stalks of the former plant & the "saw-pole-
lucid ice" appears like "locks of common"
wool, varying from 4 to 5 inches in diameter.
Refers it to the moist earth without any
vitality in the stem. Am. Scientist Dec. '58
p. 157 g.v.

Forms of Trees.

"In forests all trees, no matter what may
be their typical form, imitate the pine
and strain upward to the light in per-
pendicular shafts. By the side of run-
ning water, all trees imitate the willow
and bend their limbs downward in
lovely swags; and wherever the at-
mosphere is charged with moisture,
the trees expand their branches

in a peculiarly evocative and luxurious manner difficult to describe, but easily recognised. Whenever, there, fore, you see a tree with its limbs hanging downward like those of a willow, you may be pretty sure that there are brooks running below the surface, if not visible above it; and if when you see trees spreading themselves out in every direction, leaning their branches this way & that, like the trees which the Italian painters loved to draw in their picture of the flight into Egypt, you may recognise the presence of an excess of aqueous vapor in the air.

(Clarke's 11 weeks in Europe
(Switzerland))

Origin of Schooners V. Hist. Coll 9th vol 1st series
also 1st vol 4th series, p 90
H234

"The year 1714, near which time the first vessel of the class called schooner was built at Gloucester, by Andrew Robinson. The account is well confirmed, and in substance is that having mortised and rigged a vessel in a manner unknown either in Europe or America, and to his own fancy, a bystander at the launch exclaimed, as she started from the stocks, 'O, how she scoons!'"

and that Robinson replied, "A schooner
let her be."

Salinas' Report on the
Fisheries, 1853 p. 130

But Walker gives the German schooner. & old Barclay
& Skene means to go idling along, & scudde.
V P. T. L. : name Sings
or School

Rain in Egypt

The sky of Egypt has been, at least,
6000 years without raining, and - - -
this phenomenon of celestial irrigation,
unknown in these localities at the
time of the French expedition, now
produces itself 40 days in the year, by will
of the present vizier, Mohammed Ali."
Trans. from the French of A. Toussaint

The Bat

"The skeleton with the rays
sailing through the regions of dark-
ness with silent flights. - - -
By day, hanging from the vault
of sepulchral grottoes, it imitates
the absolute stillness of the dead in
his shroud." ibid.

La Plata

"In breadth, La Plata equals that of the
Amazon, and is navigable by vessels
of considerable tonnage, even to the
bay of 400 leagues from its mouth." -

(The Uruguay, a tributary, surpasses the Rhine)
 "At its mouth its breadth is so great that
 the eye cannot at any point take in
 both its banks at one view - not even
 from the center of the river; and that pro-
 ceeding 200 leagues higher up, it requires
 an hour to cross it." Burchard's words.

Plants of Aboriginal Introduction.

"I found 2 weeds growing abundantly about
 the Chinook villages, Polygonum aviculare,
 & Chenopodium album [?] and also, Bracken-
ridge met with a third, Plantago major, [?]
 in the secluded district of Gray's Harbour".
 Pickering's Raven

Plants recently introduced into N. W. America.

Anthemis cotula - Amaranthus & Capsella
bursa-pastoris at Fort Colville. Sonchus
oleraceus at Fort Wiggan.

Campanula implexicaulis - & Polyg. Per-
nicaria - in Oregon
Monarda verticillata Thid.

Found by Cook & Foster in New Zealand.
Sonchus oleraceus; ^{strongly introduced} one of the first Acacia & Alfalfa
 new countries where it yet took hold - Ononis, an-
gustata - Calystegia sepium Thid.

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The natives of Australia, being for the most part devoid of clothing, and possessing very few manufactures, have contributed perhaps less than any other branch of the human family to the dispersion of seeds & plants. *Calyptegia sepium* & *Neyoa angulata* were found there. along this

Of European introduction

Neyoa angulata at Hawaiian Islands.
Portulaca oleracea "
Eleusine indica - Penn - Potagonia
 - etc

Introduced Plant of Egypt.

Polyg. aviculare - *Chenopodium album*.
Cercaria dioica - *Urtica urens* - *Lamium*
amplexicaule - *Artemisia rubra* - *Stellaria media*.
Polygonum persicaria -

Deer in Wyoming County Penn.

"The wharbit" he ^{said} [i.e. a hunter of that county] the swamps of mountain-laurel thickets, through which a man would find it almost impossible to make his way. The laurel bushes, & the hemlocks, scattered among them, intercept the snow as it falls, and form a thick roof, under the shelter of which, near some pool or rivulet, the animals remain until spring opens. A single pro-

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tasteful from the severity of the weather as
 sheep under the sheds of a farm-yard.
 Here they feed upon the leaves of the laurel
 and other evergreens. This country & the
 law & kill them after the Christmas holidays,
 but sometimes their retreat is invaded,
 and a deer or 2 killed; their flesh, however,
 is not wholesome on account of the
 laurel leaves on which they feed, & their
 skin is nearly worthless."

Bryant's Letters of a Traveller
 2nd Ed. p. 311

The Arab & his Horse

"Whenever a horse falls into the hands of
 an Arab, his first thought is how
 to ascertain its descent. If the owner
 be dismounted in battle, or if he be even
 about to receive his death blow from the
 spear of his enemy, he will frequently
 exclaim, 'O Fella! (such a one) the
 & mare that fate has given to you
 is of noble blood. She is of the breed of
 Saklawizah, and her dam is ridden by
 Awaith, a Sheikh of the Fedhan' or as the
 case may be. Nor will a lie come from the
 mouth of a Bedouin as to the race of his
 mare. — The descent of a horse
 is preserved by tradition, and the birth of a
 colt is an event known to a whole tribe.

The townsman or stranger being a horse
and is desirous of having written evidence
of its race, the broker, with his friends,
will come to the nearest town to testify
before a person specially qualified to take
the evidence, called the Cadi of the
Courts, who makes out a written
pedigree, — and then affixes
his seal." — *Seymour's Travels in Persia*
1853.

Site of Babylon

"On all sides fragments of glass, marble,
pottery, and inscribed brick are mingled with
that peculiar vitreous and blanched soil,
which bred from the remains of ancient
habitations, clusters or detours vegetation,
and renders the site of Babylon a naked
sterile waste." — *Thirl*

The Mujelibe or Kasr a mound ruin at Babylon.

"Upon nearly every brick is clearly & deeply
stamped the name & titles of Nebuchad-
nessar, and the inscribed face is always
placed downwards. — This ruin
has for ages been the mine from which
the builders of cities rising after the fall
of Babylon have obtained their materials.
To this day there are men who have
no other trade than that of
gathering bricks from this vast heap

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 and taking them for sale to the neigh-
 boring towns, villages, and even to
 Baghdad. There is scarcely a house in
 Hilla which is not almost entirely built with them,
 and as the traveller passes through
 the narrow streets, he sees in the
 walls of every house a record of the
 glory & power of Nebuchadnezzar.
 — — — This process having now gone
 on for centuries. — — — This brick-
 trade — — — " This

Recent Assyrian Scholars.
 Col. Rawlinson and Dr Birch, &
 Mr. de Sauray &c. This.

Ancient Glass found at Nimreh.
 In glass the atoms maintaining a forced
 vibration, tend to reach their primitive
 state or position. It therefore is
 at last disintegrated - sometimes becomes
 opaque - and under some circumstances
 assumes beautiful colors. There
 is perhaps no material body that
 ceases to exist with so much grace
 & beauty, when it surrenders itself
 to time, and to disease. But
 quartz or rock crystal is pure
 silica - its atoms "vibrate" in virtue
 of regular laws. Such substances there-
 fore, do not decompose under the

strange action of the elements. The lens of rock crystal, for example, found by Mr. Sargis, at Vinorech, is as round as it was many thousand years ago, when in the form of a crystal. See David Brewster in Appendix & etc.

The Rainbow

"The, I think, I see in order thus: violet - red - orange - yellow - green - blue - violet - red: in which arrangement the extreme blue orange comes between red and yellow; that is, it is composed of those colors melting into each other. Green is in the same way, composed of yellow & blue; and violet or purple of blue and red."

"From these three virgin colors, red, blue, & yellow, all the tints of nature are composed." From Gillpin notes to Poem on Landscape Painting.

Colors of the Ocean.

"To this we may add the brilliant hues, which are continually playing on the surface of a quiet ocean. Beautiful, no doubt, in a high degree are those glimmering tints which often visit the tops of mountains: but they are mere condescension, compared with these marine colors, which are continually varying and shifting into each other

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in all the vivid splendor of the rain-
bow, through the space often of several
leagues." Gilpin's Southern Tour.

Currents & Gooseberries

"Current bushes, are of 2 kinds, red & black,
- - - The goose berry - bush, the
berry which is called is called Grossers
or Thorn Grapes, grow all over the
country, the berry is but small, of
a red or purple color when ripe.

Jonely's Account of 2 voyages
to New England.

Beasts of New England

"There are not many kind of beasts in
New England, they may be divided into
beasts of the chase of the striking foot,
as Boes, foxes, jackals, wolves, wildcats,
raccoons, porcupines, squirrels, musquashs,
squirrels, rabbits, and Martlets; and beasts
of the chase of the sweet foot, such
as deer, reindeer, otter, marmoset,
macewit, bear, beaver, otter, marten,
badger."

2 kinds of fox. "One a great yellow
fox, and the grey, who will climb up
into trees." - Of wolves - "Their
kennels are under thick bushes by great
trees in remote places in the swamps." This

Pigeons

"I have seen a flight of pigeons in the spring and at Michaelmas when they return back to the southward for 4 or 5 miles, that to my thinking had neither beginning nor ending, length nor breadth, and so thick that I could see no sun. They go in vast numbers, tree to tree by their nests many miles together in pine-trees." Ibid.

Old Fashion of Building.

"Those in New Netherland and especially in New England, who have no means to build frame houses at first according to their wishes, dig a square pit in the ground, cellar fashion, 6 or 7 feet deep, as long and as broad as they think proper, case the earth inside with wood all round the wall, and line the wood with the bark of trees or something else to prevent the caving in of the earth; floor this cellar with planks and wainscot it overhead for a ceiling, raise a roof of staves clear up & cover the staves with bark or green rods, so that they can live dry and warm in these houses with their entire families for 2, 3 & 4 years, it being understood that partitions are

men through those cellars which are adapted to the use of the family. The wealthy & principal men in New England, in the beginning of the Colonies, commenced their first dwelling houses in this fashion for 2 reasons; firstly, in order not to waste time building & not to want food the next season; secondly, in order not to discourage poor laboring people whom they brought over in numbers from Fatherland. In the course of 3 @ 4 years, when the country became adapted to agriculture, they built themselves handsome houses, spending on them several thousands."

From "Information Relative to Taking up Land in New Netherland. by Cornelis Van Tieshoven, Secretary of the Province. 1650". Translated from the Dutch."

Eagles

Arnoldus Montanus in his description of New Netherland, Amsterdam 1671 - says of the Eagles that they have "bones without marrow - the brains dry, the eyes small & hollow, the feathers hard, the right foot bigger than the left They usually breed 2 to 3 young, whose eyes they turn towards the sun's rays. If these regard the light of heaven without

blinking they bring them up, otherwise, those that cannot stand such a test are driven from the nest. The young as soon as they begin to fly, are taken up into the air, and left there to themselves. . . . They die mostly of hunger, as the bill becomes by age so crooked that they cannot open any thing. When upon they finally fly to the highest regions towards the sun, tumble down into the coldest stream; they pluck out their feathers, darning with sweat, and then, breathe their last."

Arctic Plants -

Kane at St. Geo says "Nothing curious under their protecting ^(i.e. mosses) tufts, rose a common white pastime of tinted flowers, consisting of Gentians, Ranunculus, Sedum, Draba, Potentilla, Saxifrage, Poppy, & Sedums.

The Arctic turf is unequalled: nothing in the tropics approaches it for specific variety, and in density it has equalled its Alpine congener. Two birches (*Betula alba* and *B. nana*), three willows (*Salix lanata*, *S. glauca*, & *S. herbacea*), that noble heath, the Andromeda (*A. tetragona*), the whortleberry (*Vaccinium vitis-idaea* and *V. uliginosum*), the crow-berry

(*Empetrum nigrum*), and a *Potentilla*,
 were, in one instance, all wreathed together
 in a matted web, from whose intricate
 web-work, rising within an area of a single
 foot, I counted no less than 6 species of
 flowering plants.

Between Cape York & Sable Igloo - he
 finds "the veined leaves of the *Pyrola* were
 creeping out among chick-weeds, and
saxifragas, the small *Ranunculus*.
 - - - next the cliffs on each side "towers of
 sedge & coarse grass began to show them-
 selves" - - - and further off an immense
 of Arctic shrubs & trees." These last had
 lost their uprightness. "Few rose above my
 shoulders & none above my ankles." Beside
 these he has named the finds here the *Asa* *Arctica*
procumbens "of our Pennsylvania woods".

Kane's "Arctic Expedition
 1850-51

Enterprises performed on foot

In an Address before the Geog. & Statistical
 Society Feb 16 1854 reported by the
 New York Daily Times - Lieut. Maury
 says - "that navigator from the east
 & west have met in the northern waters -
 Lieut. Croswell, of the *Majesty's* navy was
 the first by sailing and travelling to the

a guide round this continent.

"To McClure belongs the high honor of putting to rest the vexed question of a Northwest Passage. On the 26th day of Oct. 1850, being on a traveling party with a fleet, he established the fact that the straight between Baring Head and Prince Albert Land, which he called Prince of Wales Strait, and in which his ship was, connects the water with Baffin's Bay, through Melville Sound, Barrow Strait, and Lancaster Sound."

The 20th of July 1853 Kane was at Upernivik on his 2^d Expedition.

In 1850 Herndon was sent to explore the Amazon. His report is published. He found it navigable for vessels of the largest class, from the sea to the base of the Andes, a distance of nearly 3,500 miles.

pages in exploring the Rio de la Plata. He has abundantly found 20 feet of water for the whole of the lower Mississippi. Gibbs is about reporting on the Astronomic Exped. to Chili & the Rae has gone back to the report to make further investigations. Thomson is examining the Gt. Northern for a canal. Perry is at Japan or in the east. Ringgold with the largest surveying Expedition now afloat is in the North Pacific.

"Thus we have, or will have, George

our arctines, De Haven and Kane
in the Frozen Sea; Thain & Berndon,
with Gibson, his companions, in the
Tomb Zone; Perry & Ringgold in the
East; with Page & Gibbs & McRae
in the West.

Also we have Berryman's deep-sea
soundings between Newfoundland
& Ireland. Then there is the Coast
Survey now progressing & that of the Lakes.

Then the Pacific railway surveyors
Williamson on the Pacific Slope - Stephens
at the north - Whipple at the South -
Gunnison in the middle being dead.

Higginson has explored the Zuni
River. & Fremont & Beale are active
in the Rocky Mts.

Herodotus -

"Under a juster allocation of his rank,
as the general father of prose compo-
sition, Herodotus is nearly related to all
literature what soever, modern written
even ancient; and on the father of what
may be called ethnographical geogra-
phy, as a man who speculated most ably
on all the humanities of science - that
is, on all the multiple questions which
naturally interest our human curiosity
in this great temple we call - ought

least of all the clares amongst his-
torians. . . . Antiquities, or mythe-
logy, martial institutions, or pastoral,
the secret motives to a falsehood which
he exposes, or the hidden nature of some
truth which he deciphers - all alike
lay within the searching dissection of
his astonishing intellect. The most power-
ful lens by far that has ever been
brought to bear upon the mixed objects
of a speculative Traveller.

The proper English version of the title
page would be 'Of the Researches made
by Herodotus, Nine Proofs.'

He is a Traveller of discovery, like Cap-
tain Cook or Park. He is a naturalist,
the earliest that existed. He is a mythe-
logist, and a speculator on the origin,
as well as value, of religious rites. He
is a political economist & instinct of
genius, before the science of economy
had a name or a conscious function; -

. . . we do not scruple to say that
mutatis mutandis, and concerning
concedendis, Herodotus has the separate
qualification of the two men whom
we would select by preference as the
most distinguished amongst Christian
travellers - naturalists; he has the uni-
versality of the Prussian Bismarck;
and he has the picturesque fidelity

& nature of the English Danhier - I
 show the last was a simple respecta-
 ble seaman, but strong minded
 by nature, austere accurate through
 his moral reverence for truth, and zealous
 in pursuit of knowledge, & ambi-
 tious which raises him to a level with
 the noble Greek ^{ancient} seamen. He thinks
 it well nigh impossible, barely to suspect
 the physical theory of Herodotus, barely
 to imagine the idea of a divorce occurring
 in any theory between the solar orb and
 the great phenomena of summer &
 winter. He thinks - I believe erroneously
 that Herodotus knew only a fluctuating
 east - inasmuch as the sun did not
 always rise at the same point in the horizon
 to him - & hence made the Danube the
 counterpart of the Nile. Colnaghi
 at our rate - when he means east is careful
 to say the equinoctial point.

The Egyptian priests "had persuaded
 him that already more than once
 the sun had gone round the re-
 gion of Europe, &c" De B. makes sport
 of this & does not perceive its relation
 to Cosmology, yet De B. gives good
 reasons for believing the story of the
 circumnavigation of Africa "accomplished
 under the orders of Pharaoh Necho."
 & that they had the sun on the right.

"Pliny's Natural History has been
 - small thought the greatest treasure-
 house of ancient learning. But the old
 stuff Perotom furnishes by much the
 largest basis for vast commentaries re-
 vealing the archaeologies of the human race.
 J. C. Zimney.

Facts from "The Ocean Voyagers"
 by Cap. Mayne Reid.
 1854

the muskrat, "natural enemy, the wol-
 verine (Lynx luscus), "
 In the wooded tracts of the fur countries
 "the rare and highly-prized silver fox
 (Vulpes argentatus), whose shining skin
 sells for its weight in gold!"
 Even as far N. as Oregon on the W. of the
 Rocky Mts are found the cougar (Felis
concolor) and the ounce (Felis onca).
 "The prong-horned antelope (Antelope ferifer)
 - - - in early times - - - must have ranged
 nearly to the Atlantic shore, as Father Blenne-
 pin, in his travels, speaks of "goats" being killed
 in the neighborhood of Niagara, meaning us
 other than the prong-horned "Antelopes."
 The white spruce (Pinus alba), "is the very
 last tree that disappears as the traveller, in
 approaching the pole, takes his leave

of the limits of vegetation." The Voyageurs call it "épinette."

Lake Winnipeg is "remarkable, as being in the very centre of the N. A. Continent, and maybe called the centre of the canoe navigation. From this point it is possible to travel by water to Hudson's Bay on the north-east, to the Atlantic Ocean on the east, to the Gulf of Mexico on the south, to the Pacific on the west, and to the Polar Sea on the north & north-west."

"This called in different districts, or by different authors, elk, round-horned elk, American elk, stag, red deer, gray moose, le biche, wapiti, and wewaskish. Naturalists have given us a few of their designations, as Cervus Canadensis, C. major, C. alen, C. stronglyloceus, &c." - - - "gray moose" is a hunter's appellation, & distinguishes it from the real moose, which the same hunters know as the "black moose." Thinks Wapiti the best. - - "Very often a pair of bucks, while thus contending 'lock' their antlers, and being unable to draw them apart, remain head to head until both die with hunger, or fall a prey to the prowling wolves. This is true not only of the elk, but also of the reindeer, the moose, and many other species of deer. Hundreds of pairs of horns have been found thus 'locked', and the solitary hunter has often surprised the deer

in this unpleasant predicament."

Makes 2 species of wolves in America. "The large or common wolf (*Canis lupus*), and the barking or prairie wolf (*Canis latrans*). There are at least 5 diff. varieties of the first "black, pied, white, dusky, and gray wolves." - - - The last or prairie wolf is smaller - in Mexico is called 'coyote'.

The wolverine. "His hind feet are plantigrade, that is, they rest upon the ground from heel to toe; and his back curves like the segment of a circle. He is fierce and extremely voracious" - he enters the trap from behind, tears the back out of it before touching the bait, and thus avoids the falling log." If he finds a marten caught - he does not eat - but hurries it in the snow. The foxes, knowing this habit, find it. "The beaver however, is his favorite food." "His great strength and acute scent enable him to overcome almost every wild creature of the forest or prairie. He is even said to be a full match for either the panther or the black bear." "North of latitude 40° he ranges perhaps to the pole itself, as traces of him have been found as far as man has yet penetrated. - - - solitary - - and - - a nocturnal prowler. - - - cubs are of a cream color. - - Canadian voyageurs call him 'Carcajou' the servants of

the Hudson's Bay Company - 'quickhatch' "It is supposed that both these names are corruptions of the Cree word okee-coo-haw-gew -

The narrow-leaved ledum makes the best tea. Perhaps 20 kinds of marmots in N. Am. some he thinks allied to the ground squirrel - then to the rabbit - and a few "have a sprinkling" of the rat in them. "seen & form a link between the squirrel & rabbits."

Diff. bet. hawk & buzzard like, and the true falcon. in taking their prey. "The former skim forward upon it sideways, that is, in a horizontal or diagonal direction, and pick it up in passing; while the true falcon, - as the merlin, the peregrine, the goshawk, and the great eagle falcon - swoop down upon their prey perpendicularly like an arrow, or a piece of falling lead."

The canvas-back ^{canst} ~~called~~ ^{is} ~~called~~ ^{called} ~~the~~ ^{the} ~~valisneria~~ ^{valisneria} - because of its feeding on "tape-grass, or eel-grass" when the leaves have been feeding the leaves are left floating, & under the name of "grasswrack", are thrown by the wind and tide upon the adjacent shores. "valisneria spiralis is a kind on which they feed. i.e. wild celery."

The bridgion (A. Americana) wait on the surface & when the canvas-back comes up rob him & fly off.

The ruby-throated hummingbird the smallest bird that migrates into the Fur Country, excepting the "cinnamon humming-bird." i.e. west of the Rocky Mts. - 2 or 3 others make

an excursion into high latitudes.

The fishhawk "is not often seen upon muddy rivers, as there it would stand no chance of spying its victims in the water." - "In some parts of the it is called the 'water eagle', because its sudden heavy plunge upon the water is fancied to resemble the falling of a piece of lead."

"The 'sawch grass', which grows in great profusion in many parts of the Hudson's Bay Territory, and out of which the Indians often make their beds, burning it also upon the fire brings its aromatic perfume!" has a beautiful smell, quite as powerful and as pleasant as that of mint or thyme."

Bark of the scrub pines, ^{twigs} food of the porcupine - tracks "very much resemble those of a child." They remain "a whole winter in the same grove."

Moose - from 'moosca' or 'wood-eater'. "The best fall deer-skins for moccasins, as well as snow-shoes." "No deer is so difficult to get a shot at as a moose in early winter."

"In some part of the Hudson's Bay Territory, the voyageur is allowed 8 pounds of buffalo-meat per diem!"

Tripe de roche - *Grofflora vellea* "the only palatable one." After boiling for nearly an hour, the lichen becomes reduced to a soft, gummy pulp, - "It was far from being

palatable, and had a charming "feel"
 in the mouth, something like sago."
 Better when cooked with a little meat.

Trappers make no distinction bet.
 the weasel in its winter dress & the marmot.
 The skin of the 'black' or 'silver' fox, a variety of
 the red "command six times the price of
 any other furs found in America, with
 the exception of the sea-otter."
 (unknown red but *Vulpes fulvus*) He thinks our red fox in-
 troduced (?).

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Boiling Point.

"I have found that the temperature of the boiling point falls 1° Fahr. for 550 feet of ascent, uniformly for all heights." Forbes' Travels through the Alps

"Oaks . . . are confined to the Northern hemisphere . . . the Old World contains 63 species, and North America, including New Spain, about 74. Of these the United States possesses about 37, and New Spain the same number." Nuttall's N.A. Sylva. Philadelphia. 1853

The *Alnus incana* is 'larger & more than the common alder.' This.

Prunus Americana
Wild Plum.

"Few plants in North America have a more extensive range than this species of Plum: it is met with from the Saskatchewan towards Hudson's Bay, and through all the intermediate country to Georgia, Louisiana, & Texas. In the western part of the State of New York it is very common, and, in some instances, (as it appeared to me in 1810,) it has been cultivated by the Indians around their dwellings in the same manner as the Chickasaw Plum." Fruit "in some instances almost wholly yellow,

but commonly vermilion red on one side,
or a mixture of both colors," — This

"The Mountain Ash, or Roan Tree
of North America," This.

Lindley Natural System of Botany — says
that *Cornus maculata* is insect & eatable
in Russia; but in the south of Europe ex-
tremely dangerous. Of the *Grossulaceae* —
"in North America they are particularly abun-
dant." — "*Oenothera biennis* is cultivated for
the sake of its edible roots;" Doster Barton
(note words) That "It is a remarkable fact that the
young branches of *Cornus florida* stripped
of their bark & rubbed with their ends
against the teeth, render them extremely
white." — "*Cerasus virginiana*, which
is known in North America to be dangerous
[to cattle] — "the most northern woody
plant that is known is a kind of Willow,
Salix arctica." Of *Vaccinaceae* "Natives of
North America, where they are found in
great abundance as far as high northern
latitudes; sparingly in Europe; and not
uncommonly on high land in the Sandwich
Islands." — "The most active article
of the North American *Platina Medica* is
said to be the *Lobelia inflata*."

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"The pollen of *Typha* is inflammable,
 like that of *Eycopodium*, & is used
 as a substitute for it." ^{The following is quoted from Schouw in Dampier's Phil. Journal, 1825}
 "The extra-tropical grasses... far less
 from the tropical in respect of the
 number of individuals. That compact
 grassy turf, which, especially in the colder
 parts of the temperate zones, in spring &
 summer, composes the green meadows
 and pastures, is almost entirely wanting
 in the torrid zone. The grasses there do
 not grow crowded together, but, like
 other plants, more dispersed." -- "The
 grasses are also less gregarious, and
 meadows seldom occur, in the south
 than in the north of Europe."
 "It appears, that in respect of the
 predominating kinds of grain, the
 earth may be divided into five grand
 divisions, or kingdoms. The kingdom
 of Rice, of Maize, of Wheat, of Rye, and
 lastly, of Barley and Oats. The first
 three are the most extensive; the
 Maize has the greatest range of
 temperature; but Rice may be said to
 support the greatest number of the
 human race." -- "Asia is the native country of
 rice, and America of maize."

Scrub Grass

Hokebelder says that when he & his Christian Indians were killed in Canada - 1841 - "Buried, as we almost were in the snow, with the cattle standing close to our doors; they would raise their heads toward the river, which lay but a short distance from the village, as if they wished to go there, and the Indians supposing this was occasioned by their want of drink, melted snow for them, to satisfy their thirst; - seeing however, that they still kept casting eager looks in the same direction and with their noses raised, as though they smelt something, we were all at a loss to know the cause. While this was the case, two deers, that came down the river on the ice opposite the village, were shot; they being opened to see what they had fed upon, it was found that their stomachs were filled with the scrub grass, (*Equisetum hyemale*). This was the lead to the discovery of that grass by them - which was not only ^{was} the saving of their cattle - but the hogs also feed chiefly on it - & both were in fine order in the spring." 353.

Porcupines

"we saw a porcupine come walking slowly and slouchingly down the path. . . . On he came, without giving any attention to surrounding objects, until his nose was actually in the fire; then turning stiffly back with his fore feet, he stood so near that the flame, when driven towards him by the wind, still singed the hairs on his face, for some minutes, stupidly opening & shutting his eyes. At length one of the Indians, tired of looking at him, hit him a blow in the face with a piece of moss which he had on a little stick to catch. . . .

The Indians then, in conversation respecting the habits of this animal, related to me what I have since seen, namely: ~~namely~~ that as a porcupine is 'feeding' in the night, along the bank of a river, a man may sometimes take up some of his foot on the blade of a paddle, and holding it to his nose, he will eat it without ever perceiving the presence of the man." Tanner's Narrative 188

The Indians relate, that the porcupines, in the prairie countries of the north, pass the winters on oak trees, where they often times have no hole, or any other protection from the weather, than is afforded by the trunk of the tree. They strip all the bark off one tree,

before they go to search for another, and
 no way than the greater part of the winter on
 a single tree, if it happens to be a large
 one. They also pretend to fatten the porcu-
 pine in the summer, whenever they can find
 him in some hole, where he has constructed
 his nest, which is of his own excrement. This,
 they say, he eats, and never fails, when thus
 confined, to become very fat. The porcupine
 is not disposed to make any other re-
 sistance, when attacked by a man, than
 his spiny skin affords, and the Indians
 have a saying of this animal, and of
 the rabbit, "that those whom they bite
 will live to a good age". With p 303

The Otter

X "I had often heard the Indians say that
 the strongest man, without arms of
 some kind, cannot kill an otter. ---
 ... I caught the otter, and for the
 space of an hour or more, exerted my-
 self to the extent of my power, to kill
 him. I beat him, & kicked him, and
 gumbled upon him, but all to no pur-
 pose. I tried to strangle him with my
 hands, but after being so for a time,
 he would shorten his neck, and draw
 his head down between my hands, so that
 the breath would pass through, and I was
 at last compelled to acknowledge,

that I was unable to kill him without
 arms. There are other small, and ap-
 parently not very strong animals, which
 an unarmed man cannot kill. One,
 while on a war party, in a sort of
 parade, I had tried to kill a pole cat
 with my naked hands, but I had
 nearly lost my eye by the means. The
 joint which he threw upon my face, caused
 a painful inflammation, and the
 skin came off. Phil p. 215.

"Common toads.

"at the approach of winter, place them-
 selves erect on the surface of the ground,
 on their hams, and by turning them-
 selves round & round, they sink into
 the ground, which closes over them,
 and they keep below the frost. They are
 often found, several within 2" or 3 feet
 of each other, buried deep in the earth,
 but keeping constantly their heads erect."
 Phil p. 304. This of the the Ed. James'
 remarks.

Loon

"The Country of the Ogibbeway, abound-
 ing in small lakes, which sometimes lie very
 near each other, without any visible com-
 munication, they have taken up the
 idea that communication exists under
 ground, and they believe a loon can

live down in one, and come up in another of them. They think also, that the heaven can carry down so much of air entangled in his coat, that if left undisturbed at the bottom, he can thrust his nose into his fur, and breathe for some time." *Ibid* &c. p 364

Tortoises

"The *Cistuda Carolina* is found from one end of the Union to the other; the *Platemys* has as yet been discovered only in Illinois, Wisconsin, & Massachusetts.

^[Hatchling] *Emydes* . . . *picta*, *guttata*, and *Tenapi* have a very wide range, the 1st having been observed from Maine & Georgia, the 2^d ac & Major Lecote, over the whole of the United States."

... *Insculpta* is a northern animal."

"*Stemotherus apertus* is found from Maine & Florida, & prob. in all our Western States. *Chelomera serpentina* exists in nearly all parts of the Union."

Hallowell on Reptiles of New York

Exped. down River & Colorado -

Reported '53. Get in information from Holbrook

Snakes

"The Constrictor or common black snake is 'seen in' nearly all parts of the United States, and may be regarded as the most common of our serpents. The Coleby venalis is 'exclusively' a northern animal." That. That. ibid.

Bassaris.

Bassariscus astuta Ringtailed B. used by the New Mexicans & called rat snake - is it not the animal Grant Hastings 'described' as a California cat? The same book quoted from memory [The snake is 'seen on Red River, called Civet cat, by many.]

Facts from Mrs. A. H. Lincoln's Botany edition 1837

"The growth of the roots is most rapid in autumn; at this season, the sun being less powerful, and the air more charged with moisture, the juices condense in the lower part of the plant, and nourish it; but as the season becomes cold vegetation is 'checked'; the winter is 'the best time' to collect roots for medicinal purposes, because their peculiar virtues are then most concentrated." "By observations of geologists it is ascertained that stippled plants were created before cauline ones."

"Buds have been known to live for years, in 'water', without injury to the germ within."

"Herbs & shrubs have buds, but these usually grow & unfold themselves in the same season, and are destitute of scales; while the buds of trees are not perfected in less than two seasons, and, in some cases, they require years for their full development."

As summer advances, nature turns the vital energies of plants to the formation of buds."

"Buds with scales are chiefly confined to the trees of cold countries."

"In Sweden, it is said, there is a hardy shrub destitute of buds, [note - 'A species of Khammos, which grows under trees, in marshy forests.'] and this, from the peculiarity of its situation, is 'always' protected from the inclemencies of the weather."

"It appears that trees perennial plants but those furnished with scaly buds, can live in climates where it snows a part of the year."

Bud of the Button-wood is formed within the petiole of the preceding year."

On the lilac bud may be "The thyrses of flowers formed in the buds in autumn."

"Primordial, leaves growing immediately after the seminal leaves, and resembling them in position, form, & size. The primordial leaf, according to the fanciful idea

of a French botanist, is 'a sketch which Nature makes, before the perfection of her work.'

Then the characteristic leaves

"In the regions of the torrid zone, the leaves are mostly persistent Evergreen; they seldom fall or decay in less than 6 years;

Leaves, with respect to duration, are, Caducous, such as fall before the end of summer; Persistent - & the Evergreen.

"A small quantity of iron, united to oxygen in the vegetable substance, and acted upon by the rays of light, is said to give rise to the various colors of plants." - To quote the words of a celebrated chemist; "When Nature takes her hint, iron is 'the coloring she uses'."

"It has been found that the leaves of plants, laid with their surface upon water, wither almost as soon as if exposed to the air; although the leaves of the same plants, placed with their under surface upon water, retain their freshness for some days."

Of the fall of the leaf. "Heat, drought, frost, wind and storms, are all agents in their destruction. About the middle of autumn, the leaves of the Sugar and Grapevine begin to look red, those of the Walnut

brown, those of the Honey-suckle, blue,"
and those of the Poplar, yellow; -
The corolla exhibits "every variety
of color except black"; "no black roses"
20 - the darkest being but a very deep
shade of purple.

It has been calculated that
1 single thistle seed will produce at
the first crop, 24000, and at the
2^d crop, at this rate, 576 millions.

The maturity of the seed marks the
close of the life of annual plants, and
the suspension of vegetation in woody &
perennial ones.

Linnaeus asserted that the *Erigeron*
canadense was introduced into Europe
from America, by seeds wafted across
the Atlantic Ocean.

A considerable portion of it [the
sap] is, by pores in the leaf, exhaled in
the form of almost pure water, while
the particles of granular kinds, which the
sap held in solution are deposited within
the substance of the leaf. This process is
sometimes termed the perspiration of
plants; it is visible in some gram-
like plants, particularly upon the
leaves of Indian corn. If these are
examined before sunrise, the per-
spiration appears in the form of
a drop at the extremity of the

leaf; the ribs of the leaf unite at their points, and a minute aperture furnished for the passage of the fluid, may be discovered."

"The *Laurea borealis*, called Spice-bush, has scarlet berries, — "This flower [the white] closes, opening and sinks under water."!!

"The name *Orchis* is derived from a Greek word, signifying an olive-berry, on account of the root being round & like that fruit."

"The genus *Boletus* contains the touch-wood, or spunk, which is sometimes used as tinder. The *Lycopodium* contains the puff-ball."

The putting forth of leaves, and the blooming of flowers, differ, however, in one circumstance; the leaves begin at the upper leaf-buds; the flowers at the lower flower-buds; the stipes, panicle, and thyrses, begin to blossom gradually from the base to the summit, cymes & umbels blossom from the outside to the centre.

The Flowering of Plants "is" called florescens."

"*Anemone virginiana*, the Wind-flower, a name given, as some say, because the flower expands only in windy weather."

"In the early part of June the foliage of the trees usually appears in perfection; among the earliest are the willow, poplar, and alder; next come the bass-wood, horse-chestnut, oak, beech, ash, walnut & mulberry, which are not all usually in full leaf before the middle of June.

More flowers are in bloom about the time of the summer solstice than during any period of the year, until the blooming of the autumnal plants. The hot breath of summer seems to wither the expanding flowers, the earlier ones fade away, and the late ones do not immediately come forward;—it would seem as if the earth, having poured forth in rapid succession innumerable treasures, now required a suspension of her efforts; but with renewed energy, she soon begins to push forth new beauties, and to deck herself in her most gorgeous attire."

"Few examples of the compound flowers, occur until the latter part of July, and beginning of August;

Quoted from Lord Bacon. . . .
 . . Chickweed, (*Onagallis*.) When the flower expands boldly & fully; no rain will happen for 4 hours or upwards.

if it continues in that open state, no rain will disturb the summer's day; when it half conceals its miniature flower, the day is generally showery; but if it entirely shuts up or veils the white flower with its green mantle, let the traveller put on his great-coat, and the ploughman, with his team of draught, expect rest from their labor.

"Siberian Down Thistle (Sonicus.)

If the flowers of this plant keep open all night, rain will certainly fall the next day.

"Trefoil, (Petrarum.) The different varieties of Trefoil always contract their leaves at the approach of a storm; hence these plants have been termed the husbandman's Barometer."

"White Thorns and dog-rose bushes. Wet summers are generally attended with an uncommon quantity of red on these shrubs, whence their unusual fruitfulness is a sign of severe winter."

End of Bacon.

(Oenothera)

"The Evening Primrose is well known from its remarkable property of regularity, shutting with a loud popping noise about sunrise & opening at sunset. After six o'clock, these flowers regularly report the

"Approach of night."

Boston "observes, that the [Compound flowers] have a kind of weed-like appearance, notwithstanding the beauty of their coloring; the stems and leaves are often rough, and they seem to have been long completely retained from their savage state, than most other plants, with the exception of the Cryptogamous class."

Facts from Alphonso Wood's
"Class Book of Botany" 1851.

"At the Island of Amsterdam a spring was found, the mud of which, far hotter than boiling water, gave birth to a species of liverwort." Ed. Staunton.

"I have before me says he [Dr. Lindley] three plants of raspberries, raised from seeds which were taken from the stomach of a man whose skeleton was found 30 feet below the surface of the earth. He had been buried with some coins of the emperor Hadrian, and it is therefore probable that the seeds were 1600 to 1700 years old."

So says Wood, beach plum growing of from sand dug up 40 miles from the coast of Maine.

"Fugacious, when they fall off early, before the end of summer.

Deciduous, when they endure for a single season and fall in autumn.

Persistent, or evergreen, when they remain through all seasons, retaining their color until the new leaves of the following spring appear, so that the plant is always verdant. In accordance with the 2 last distinctions, plants are said to be Deciduous, or Evergreen.

Lindley's rules are "If the person is the discoverer the specific name is a substantive in the genitive case, singular number; as Lobelia Kalmii, &c

... If the name is merely conferred in honor of the person on whom it is dedicated, it is an adjective ending in nus na um; as &c

Compositae. "This is the most extensive and most natural of all the orders of the vegetable kingdom, always distinguished at sight by the capitate flowers and the united anthers. It comprehends 1005 genera (at present known, 1846), and about 9000 species; being next, or next to, all the species of flowering plants. --- According

1/2 Humboldt, the constituents - about 1/4 of
the Phanogamous Flora of Germany,
1/8 of France, 1/15 of Lapland, 1/6 of
North America (north of Mexico), and one
half of Tropical America.

N.A. American Botanists - "among the
Mr. Lincoln enumerates - "among the
earliest" - - "Colden, Michaux - &
Muhlberg, Pursh was the first who
finished a system of North American plants,
as arranged as the useful & the the-
retic. Some of the first teachers of the
science were Barton, Horack and Mitchell.
The first public lecturer on Botany
was Professor Omar Eaton. Dr. Big-
elow gave a course of lectures in Boston
in the year 1813. - - - Professor Pres-
& Dr. Tully did much in New England - -
- in 1815 & 1816; and at a later peri-
od Dr. Sumner - - - " was in
great want of books when Eaton
published his *Manual of Botany*.
This gave an important impulse then followed
Nuttall's *Genera*, Elliott's *Native Plants*,
Barton's *Flora of Philadelphia*, Darling-
ton's *Torrey*, & Bigelow's *Flora*.
These supplies most of the deficiencies
of Pursh. - Among elementary books

Boston Elements - Locke's Botany, Sumner's
 Compendium of Botany - written in a beautiful
 & pure style - more recently Nuttall's
 Elementary work - giving more facts than
 almost any other of the kind - - Beck's
 B. - valuable.

Millin's Account of the Ancient
 Egyptians (abridged) London '54

Speaking of harp-like or lyre-like in-
 struments - says the strings were of catgut.
 "and those of woodcut 130, fig. 1, were so
 well preserved that when found at Thebes,
 in 1823, they sounded on being touched, though
 buried 2 or 3000 years."

"the natives of the Balearic Islands"
 "considered the string of so much im-
 portance that the principal care of a
 harper was to visit it a boy in its use;
 and he was not permitted to leave his
 breakfast, until he had dislodged it
 from a beam with the string."
 "on the lead of the Greeks there"
 was often the word "Askas - Take that".

"of the horses of the Ancient Egyptians" They
 had no blinkers."

Glyphs in types of work (near end of it)
 are comparatively modern.

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Bottles of Chinese manufacture are found in the tombs of Tibet - presenting inscriptions in that language. They are about 2 inches in height: one side presents a flower, and the other an inscription, containing, according to Mr. G. Davis (in 300 p. & he examined), the following legend: - "The flower pens, and lo! another year; and another has been translated by Mr. Thoms: - During the shining of the moon the fir tree sends forth its sap," (which in a thousand years becomes amber.)

They are now thought from the style of the characters - and the alleged date of the poems from which the sentences are taken, to have been brought to Egypt by Arab traders in comparatively recent times.

Muskraut

"The muskraut abounds over the greater part of the American continent, extending from the Atlantic to the Pacific." Baird

Unsu, Americans.

Several anecdotes were related to me by our guide - of a Delaware Indian. "Before making his bed to lie down, the animal invariably goes several hundred yards into the wind, at a distance from his first

back. Should an enemy now come upon his track, he must approach him with the wind; "and he is 'sure to smell him."

When approached by the hunter with a light in a cave, "he sits upright on his haunches, and with his fore paws covers his face and eyes, and remains in this position until the light is removed. Thus the hunter is enabled" to shoot him.

Marcy's Exploration of the
Red River of Louisiana in 1852.

Antelope &c -

"The greyhounds have upon several different occasions run down & captured the deer and the prairie rabbit, which are also considered very fleet; but although they have had very many races with the antelope under favorable circumstances, yet they have never in one instance been able to overtake them; on the contrary, the longer the chase has continued, the greater has been the distance between them. The Cervus virginianus (our red deer) has generally been considered the fleetest animal upon the continent after the horse, but the Antilocapra americana, or prong-horned antelope of the plains, is very much swifter." Ibid.

Selenite

"The Selenite was regarded among the ancients as the most delicate variety of alabaster, and was employed by the wealthy, and in palaces, for windows, under the name of Phenixites. It has the curious property of enabling a person within the house to see all that passes abroad while those abroad cannot see what is passing within." Ditchcock in Murry's Report.

Deer & Rattlesnake.

x "This animal on discovering a snake, as I have repeatedly witnessed, retreats some distance from it, and running with great rapidity - alights with its collected feet upon it; - Hunter's Captivity
 it; same in Murry's Report & Hunter's feet
 Buffalo.

The same ran where many thousand buffaloes had been burned with the prairie grass. Speaking of them - he says, "This wild state it appears to great its advantage on account of its being generally intermixed with the burrs of various plants."

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In Lagarde's 'Grand Voyage' -
 is described the humming-bird - which
 the ^{Mexicans} ~~Americans~~ call the Resuscitated - "It
 feeds on dew & the odor of flowers."
 "This bird they say, dies in winter & goes to
 sleep in the month of October, remaining
 attached to some little twig of a tree by its
 feet, and awakes in the month of
 April when the flowers are in abundance,
 but sometimes later, & for this reason
 it is called in the Mexican language,
 Resuscitated." It saw them also at Quebec

Bullfrogs

The same says of them in the Huron County -
 "They have a voice so great & powerful
 that we hear them more than a quarter
 of a league distant at evening, in
 serene weather, on the shore of the lake
 & river, and it would seem, (some who
 had not yet seen them,) that it was from
 animals 20 times as large; as for me
 I confess vigorously that I did not
 know what to think at first, hearing
 these great voices, & imagined that
 it was some dragon, or else some other
 great animal unknown to us."

Bunch-berry (?)

The same describing the small fruits

of the Huron country - There are some red,
which seem almost of coral, and which
present quasi 'cortic' terre in little bouquets,
with 2 or 3 leaves, resembling the laurel,
& seem very beautiful bouquets, & would serve
for such if there any here."

Ephemerae (!)

Sagard. coming down the Ottawa in the
Spring of 1625 (?) with his Indians - being up
when the savages of the Ojib & the Sault de la
Chaudière - he says - "As soon as it began
to be light we put ourselves upon the
water covered everywhere by an almost
infinite number of propellions, in the extent
of more than 3 hours of day, and the
river which seemed a lake in this place,
more than half a league broad, was every
where white covered with these little animals,
so that I should have doubted before
if there could have been as many in
all the rest of Canada as there were
found in this river alone." - after-
wards comes a Sault called la Montagne.
This ~~river~~ ^{is} Sagard's
Histoire du Canada "1636."

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Sol. Heat. & Acorns.

When the inhabitants of Quebec suffered from famine in 1629 - the year their town was taken by the English - they used the root of what they called *Sigillum Salomonis* - either as bread or with acorns or barley meal. They boiled their acorns in water with ashes twice - to remove the bitterness - then pounded & mixed them with barley meal - & so thickened their broth. *Journal Hist. du Canada.*

NB

N.E. or Island.

"The place whereon the English have built their colonies, is judged by those who have best skill in discovery, either to be an island, surrounded on the north side with the spacious river Canada, and on the south with the spacious river ~~Canada~~ Hudson's river, or else a Peninsula; these 2 rivers overlapping one another, having their rise from the great lakes which are not far off one another, as the Indians do certainly inform us."

Wm. Wood's N.E. Prospect
London. Edition 1639

Length of Winter.

"The extremity of this cold weather lasts but for 2 months, or 10 weeks, begin."

rising in December, and breaking up the
 10th day of February, which hath be-
 come a passage very remarkable,
 that for 10 or 12 years
 the weather hath held himself to this
 day, unthawing his icy bays & rivers,
 which are never frozen again the
 same year, except there be some
 small frost until the middle
 of March. It is observed by the Indians
 that every 10th year there is little
 or no winter, which hath been ob-
 served by the English - viz 1620 - & 1630
 both times Plymouth - & Mass. settlement.
 Ibid.

Spring Phenomena

"For the Indians burning it [the ground]
 keeps from the underwood, which else
 would grow all over the country, the
 snow falling not long after, keeps
 the ground warm, and with his
 melting convey the ashes into the
 pores of the earth, which both fatten
 it."

"In the Spring, when the grass begins
 to put forth, it grows apace, so that
 where it was all black by reason of
 winter burnings, in a fortnight
 there will be grass a foot high."
 Ibid.

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Indigenous Plant -

The same finds "not only in planted garden, but in the woods," - "sweet marjoram, purslane, rose, pennyroyal, yarrow, myrtle, saxa-fraga, bay, &c." This.

The pine.

"One of these pines is 'gotten the candle-wood that is so much spoken of, which may serve for a shift amongst poor folks; but I cannot commend it for singular good, because it is something stutish, dropping a pitchy kind of substance where it stands." This

Cherries & Plums &c

"They be much smaller than our English cherry, nothing near so good, if they be not very ripe; they so fester the mouth that the tongue will cleave to the roof, and the throat wax hoarse with swallowing these red bubbles (as I may call them) being little better in taste, English ordering may liking them to our English cherry, but they are as wild as the ~~very~~ Indians. The plums of the country be better for plums than the cherries be for cherries; they be black & yellow, about the bigness of Samsons, of a reasonable good taste. The white

21)

Thorn affords haws as big as an English cherry, which is esteemed above a cherry for his goodness and pleasantness to the taste." *Ibid.* p. 21

He says of the "great grey Squirrel" the only grey one he names, "about 3 o'clock [p.m.] they begin to walk."

Musk rats

Then skins "are sold for 5 shillings a piece, being sent for takers to England. One good skin will perfume a whole house full of cloaths, if it be right & good."

Beaver

6 of them "being placed 3 & 3, which set their teeth in one another's tails, & laying the load on the hindermost, they draw the log to the desired place; - (Pagant describes a similar process - the sledge being on his back) "if any beaver accidentally light into a strange place, he is made a dundee so long as he lies there, to carry at the greater end of the log." *Ibid.*

Hawks & Humbirds.

"The princely Eagle, & the soaring hawk, Whom in their unknown ways there's none can chase, The Humbird for some Queen's rich cage more fit, Than in the vacant wilderness to sit."

The Loon
 "he maketh a noise sometimes like a sorrow-golders' horn."

Whale
 "The King of waters, the sea-shouldering whale,"

"Big-bellied Alewives," -

Clams & Hogs

"These fishes be in great plenty in most places of the country, which is a great commodity for the feeding of wine, both in winter & summer; for being once used to those places, they will repair to them as duly every year as if they were driven to them by keepers."

Rattle snakes

"In some places they will live on one side of the river, swimming but never the water, as soon as they become into the woods, they turn up their yellow bellies & die."

Frogs

"Here [i.e. in N.E.] likewise be great store of frogs, which in the spring do chirp and whistle like a bird, and at the latter end of summer croak like our English frogs." This.

Swiftness of Birds & Horses

"Our swiftest horses are supposed to go at the rate of a mile in somewhat less than 2 minutes; and we have one instance on record of a horse being tried, which went at the rate of nearly a mile in one minute, but that was only for the small space of a second of time. . . . Now, if we can suppose a bird to go at the rate of only half a mile in a minute, for the space of 24 hours, it will have gone over in that time, an extent of more than 700 miles, - ^{an Eng. man says some wild geese fly at the rate of 25 m. an hour by clock.} Did not Elisha go a mile a minute? Bewick's Birds

Newcastle 1814

Kingfisher

x "This beautiful bird has been observed, in some sequestered place near the edge of a rivulet, exposing the vivid colors of its breast to the full rays of the sun, and fluttering with expanded wings over the smooth surface of the water; the fish, attracted by the brightness & splendor of the appearance, are detained whilst the crafty bird darts down upon them with unerring aim." This is not then a mistake?

Wings of Tringa &c.

"These feathers [the tertials] are so long in some of the Scotopax & Tringa genera, that when the bird is flying they give it the appearance of having 4 wings." Ibid.

Osprey

"The Romans compare its descent upon the water to a piece of lead falling upon that element, and distinguish it by the name of Aquila Picumbina, or the Leaden Eagle." Ibid.

Golden-Crested Wren.

"This is without doubt the least of all the European birds; it is certainly the smallest of the British kind," says that ac. Buffon "The body, when stripped of its feathers, is not quite an inch long. This said the nearly identical Ibid. with ours."

Bittern

The British Ardea Stellaris Lin. Le Butor Buff. is very similar in ap. to our Ardea Minor.

It is called "Bog-bumper, Bitter-burn or Mire-drum." Ibid.

[Richardson makes of the breeding of our Ardea Minor as "exactly resembling that of the common bittern of Europe".]

Woodcock-Feathers.

"At the root of the first quill in each wing [of the Eng. Woodcock] is a small-pointed narrow feather very elastic, and much sought after by painters, by whom it is used as a pencil. A feather of a similar kind is found in the whole of this tribe, and also in everyone of the *Tringas* & *Plover*s, which the author has examined." Vind.

The Wild Swan

The *Anas Cygnus ferus* - found also in British America - Whistling Swan - "It is the setting in of frosty weather, the Wild Swans are said to associate in prodigious multitudes, and thus united, & use every effort to prevent the water from freezing: this they accomplish by the continual stir kept up amongst them; and by constantly dashing it with their extended wings, they are enabled to remain as long as it suits their convenience, in some favorite part of a lake or river which abounds with their food." Vind.

Shave Grass.

"*Equisetum hiemale*, the Dutch rush, or shave grass, is yet used in its natural state for finishing fine models in wood, and in removing roughness in plaster casts."

Journal of the Naturalist.
Philad. ed. '31.

Clat-harvest

"The droppings of the cows were collected in heaps, and beaten into a mass with water; then pressed by the feet into moulds like bricks, by regular professional persons, called clatters (clodders); then dried in the sun, and stacked like fuel, and a dry stack for the clat-harvest was considered as very desirable. These answered very well for heating water for the dairy & uses of the farm back-kitchen, giving a steady, dull heat, without flame; but navigable canals, and other conveniences of a similar nature, have rendered the practice now unnecessary. With us this bad custom is declining, and probably in time will cease altogether." This

Oak bark

"At times our barkers go on rapidly with their work; yet in a few hours a frost, or a sharp wind, will put an entire stop to their operations, in

consequence of the contraction of the flow of sap, which is followed by the adhesion of the bark to the wood." Ibid.

Trees attract humidity.

"A fog coming on, an ash tree hanging over the road was dripping with water so copiously, that the road beneath was in a puddle, when the other parts continued dry. . . . The fog in its progress was impeded by the branches of the tree, and gradually collected on the exposed side of them, until it became drops of water, whereas the surrounding country had only a mist flying over it." Ibid.

Thinks "the herbage under trees is generally more vivid & luxuriant" than beyond them sometimes because of the manure of cattle which mows them but also on account of the very "drip" in foggy weather.

Goss' home catches flies.

"But we have one plant in our gardens, a native of North America, than which none can be more cruelly destructive to animal life, the dogbane (apocynum androsaemifolium), which is generally conducive to the death of any fly that settles upon it. Attracted by the honey on the nectary of the expanded blossom, the instant the trunk is protruded

Open & close it, the filaments close, & catching the fly by the extremity of its proboscis, detain the poor prisoner writhing in protracted struggle till released by death, a death apparently occasioned by exhaustion alone; the filaments then relax, and the body falls to the ground. The plant with at times be dusty from the numbers of imprisoned "insects".
 Phil.

"Red-tail, (short, raxen, a tail,)"

Kites power & perch.

"Roosting one winter evening on some very lofty clous, a fog came on during the night, which froze early in the morning, & fastened the feet of the poor kites so firmly to the boughs, that some adventurous youths brought down, I think, 15 of them so secured!" Phil.

Song of birds.

"Those sweet sounds called the song of birds, proceed only from the male."

"Glow-worms

"emit light only for a short period in the year; & I have but partially observed it after the middle of July.

I have repeatedly noticed deep in the herbage, a faint cranesbill light proceeding from these creatures, even as late as August & September. " This

Snakes' Eggs.

columbar matrix - "They were larger than the eggs of a sparrow, obtuse at each end, of a very pale yellow color, feeling tough & soft like little bags of some gelatinous substance. - - - Snakes must protrude their eggs singly, but probably all at one time, as they preserve no regular disposition of them, but place them in a promiscuous heap. At the time of protrusion they appear & the rounded with a clammy substance, which, drying in the air, leaves the mass of eggs united whenever they touch each other. I have heard of 40 eggs being found in these deposits; " This.

Gymnura natator.

"Retiring in the autumn, and depositing all the winter in the mud at the bottom of the pond, it ascends in the spring, rises to the surface, & - - - shortly after the frog, at times in March, " withdraws the middle of October. " This.

The Hare

"The hare does not burrow like the rabbit, but makes a kind of nest of grass & other materials:— its form.

The Minutalist Nat Hist.

by the Rev. G. G. Wood

Oxford 1852 New York '54

Red-throated Humming Bird.

quote Waterton "In opening the stomach of the humming-bird, dead insects are almost always found there." This

Fresh-water Mussels

"Some [bivalves], as the fresh-water mussel, can urge themselves along by means of a fleshy organ called the foot; and so powerful is some in this organ, that by means of it the animal can not only burrow in the sand, but actually leap out of the bank." This

Heimdal

was the porter of the god. watched at one end of their bridge from heaven to earth - the rainbow - "He had also an ear so fine that he could hear the very grass grow in the meadows and the wool on the backs of sheep." *Mallet's Northern Antiquities.*

Runic Character

"The greater part of the ~~Runic~~ ancient monuments written in the Runic character, which are still preserved, are inscriptions dispersed here & there in the fields, and cut on large stones or pieces of rocks. The Scandinavians wrote also on wood and on the bark of the birch-tree." *Ibid*

The Editor Blackwell says, "More than of a thousand Runic inscriptions have been discovered in Sweden, & 3 or 400 in Denmark & Norway, but few of them are of a date prior to the 11th century, and there is scarcely one of undoubted authenticity - that throws the least light on history."

The most interesting Runic inscription we have yet seen is that on the King's Torsoak stone, in Baffin's Bay. The latter continues - "The Runic, like the ancient Greek alphabet, originally contained only 16 letters, arranged as follows: - (15 n.)

[The following are the Scandinavian Runes]

Name	fe	ur	thurs	ös	reid
Signification	nowly	a ure ox	a giant	a estuary	a ride
Figure	F	U	Þ	Ƿ	R
Power	F	U	D.T.H	O	R

name	Kön	hagl	nauf	is	ár	sol
fig.	a, when	hail	need	ice	year	the sun
Fig.	V	*	h	I	1	h
power	K	H	N	I	A	S

Name	Týr	björk	lögr	maðr	yr
Fig.	the god Týr	a birch tree	a lake	a man	a bow
Fig.	↑	B	l	Y	h
power	T	B	L	M	Y

- "was in use in the 9th century."
 The Danes retained 2 of their runic letters when they adopted
 the Roman alphabet in the 6th century, viz. "þ" and "w".
 capturing these what are called ^{Anglo} Danon characters
 ... as a mere corruption of the Roman."
 Scandinavians had runic letters certainly in
 the 6th cent.

The Kingiktoosuk stone - of which he gives a
 cut from the Ant. Americanae. contains
 an inscrip. thus trans. in English.
 "Erling Sigvatsson, and Björn Thorðesson,
 and Einrid Oddsson, on Saturday before Gangday, "
 raised these marks and cleared the ground, 1135."
 The editor divides Icelandic literature
 into "Eddic, Skaldic, and Saga literature."
 Of the first there are

the 2 Eddas, the prótri or elder, & prose or younger - The Skaldic is not worth much - The Saga includes the Heimskringla.

Night & Day

* "Then took All-father, Night, & Day, her son, and gave them 2 horses & 2 cars, and set them up in the heavens, that they might drive incessantly one after the other, each in 12 hours time, round the world. Night rides first on her horse called Hrimfaxi, that every morn, as he ends his course, bedews the earth with the foam that falls from his bit. The horse made use of by Day is named Skinfaxi, from whose mane is shed light on the earth & the heavens."

The Prose Edda Trans. by Blackwell
in Mallet's North. Antig.

Facts from Audubon & Bachman's
Quadrupeds of North America (Vol.
 1 N.Y. 1846) respecting those
 quadrupeds he found in Concord.

- 1 *Arctomys monax*. Linn.
 Woodchuck. Maryland Marmot. Ground
 Hog. Mus monax Linn.
 Maryland Marmot Penn., Arct. Zool.
 Monax, ou Marmotte de Canada, Buff.
 Maryland Marmot Godman.
 " " Griffiths, Currier
 Quebec Marmot, Pennant, Hist. Quad.
 Mus eupetra, Pallas, Gler.
 2/ *Arctomys* " Godman.
 1/ " " Salt, Linn. Trans.
Arctomys monax, et *Arctomys eupetra*, Sabine.
Arctomys eupetra Richardson. Trans. Linn. Soc.

3 of the genus in N. Am. Of this day. striking varieties of
 color. one almost coal black from Canada. Contradicts
 Godman's ac. - often invading a clover field at noon
 with a watchman when ample cheek pouches -
 A female he kept frequently emitted a shrill whistle
 like noise which is a note of alarm & song, may
 be heard 50 yards. "Become torpid about the
 time the leaves have fallen from the trees" - waits
 till the grass springs up. Saw one out in N.Y.

Oct 23^d & 1st of March - chertaceous there.
 Promiss sometimes 20 or 30 feet - called in "Canada
Siffleur. Nest of dried grass. Have 4 or 5 young
 in May or sometimes in June. In every State
 N. of South Carolina. Canada. N. Dakota. N. Minnesota.
 Hudson's Bay - nowhere more plentiful than on the
 upper Missouri. Nests of the Carolines, & in Texas
 on Rocky mts.

Sciurus. Between 60 & 70 species known -
 about 20 in N. Am. "The nest is hemispherical
 in shape, and is composed of sticks, leaves,
 the bark of trees, and various kinds of mosses
 & lichens. In the vicinity of these nests, however,
 they have a still more secure retreat in some
 hollow tree, to which they retire in cold or in
 very wet weather, and where their first little
 young is generally produced." The Chickaree
 lays up the most food. Oxia a slated & orange stain

Sciurus Hudsonius. Pennant. 2
 Hudson's Bay squirrel. Chickaree - Red Squirrel.

Eutamias Common, on Krouken, Sagard Theodat.
 Common squirrel. Foster, Phil. Trans.
Sciurus vulgaris, var. E. Erythron Syst., An.
Sciurus Hudsonicus, Pallas, Glin.
 " " Gmel., Linn.
 Hudson's Bay squirrel Penn. Acad. Zool.
 " " " Hist. Quad.

Sciurus Carolinensis Godman, non Emcl.
 " *leucotis* Gapper zool. Journ. Lond.
 " " Bach. Proc. zool.-ac. Lond.
 Gummer, on Little Grey squirrel, Emmons
Sciurus leucotis Siskay,
 " *vulpinus* "

2 varieties - the Grey & the black, lined
 morning & evening. rest at noon. In spring &
 summer makes a summer nest of sticks some
 without coming down for material of sticks. some
 as big as thumb dry or green ^{twig} leaves, & lined with moss
 from the bark sometimes. "In the winter they reside to-
 gether in holes in trees, where their young in
 most instances are brought forth." May be two
 5 together in winter i.e. the whole family, but pair
 off in separate nests in the spring. Laying
 4 or 6 in May or June. Have heard of their
 producing young in the domesticated state. Think
 it a vulgar error that they emasculate one another.
 A very small number of morivions are found in their
 holes. seldom leave their nests in winter, in cold
 climates - except on a warm sunny day, partially torpid.
 require little food. Sometimes seek larvae - but
 feed principally on "nuts, seeds & grain" prefer the
 shell-bark (*Carya alba*) & several kinds of "hickory nuts"
 & any thing else. Even when green, "may be seen gnawing
 off the thick pericarp or outer shell, which drops
 in small particles to the ground like rain, and
 then with its lower incisors it makes a small
 linear opening in the thinnest part of the
 shell immediately over the kernel. When this part

has been extracted, it proceeds to another, till in an
incredibly short space of time, the nut is cut
longitudinally on its four sides, and the whole
kernel, naked and, leaving the dividing portions
of the hard shell untouched." At this season

the trunks and legs tinged schry-red by the juices of
the hemlock. Eat also fruit of hickory -
beech - oak - maple - green corn & young wheat

2 caught with the beaver - fox - red-tailed
hawk &c 2 hawks, one on side of tree - sometimes
migrate, (like the Lemmings) in the autumn usually
southward of the line a piece of bark for food.

are seen on their migration swimming deep -
with tail submerged. Hudson's Bay, & N. B.
Virginia. The black var. especially in C. W.
West N. Y. Ohio & Indiana.

Tamias. Thig "They emit a chipping
clucking sound differing very widely from the
quacking chattering cry of the quails. They
do not mount trees unless driven to them from ne-
cessity, but dig burrows -" 4 species in N. Am.

Tamias Lysteri. - Ray
Chipping quail, Backee, &c

Esquimaux Suisse, Sagard.
Ground quail Lawson's Carolina
" " Catesby
Edwards vol 4th Kalm
Sciurus Lysteri Ray

Le Suisse Chateaux
 Stijel sormouse, Pennant
 Sciurus Caroliniensis Brisson Reg. An.
 Eschschol Sciura Desm.
 Sciurus Stratus Hawlan
 " " Godman
~~Sciurus~~ Sciurus (Tamm) Lyden Richardson
 " " " Douglass' Cat. Nat. Hist.
 Sciurus Stratus De Kay.

An albino. "There was about a quart of wheat
 & buckwheat in the nest; but in the galleries
 we afterwards dug out, we obtained about
 a quart of cracked hazel nuts, nearly a
 bushel of acorns, some grains of Ind. corn, about
 2 quarts of buckwheat, and a very small
 quantity of grass seeds." But it points
 of nuts before putting them in its mouth & carrying
 off others. Goes in in families early in Novem-
 ber - seen out for short time about last of
 Feb. Young in May & Oct - perhaps again
 later. Killed by weasel for 2 months or so. Family
 the first - certainly all in the woods only a pair.
 In E. N. & M. States abundant. Found along
 Mississippi & Alabama. In Louisiana. Many
 think it the same with the S Stratus of Iowa.

Vulpes. 12 species known. 4 in N. Am.
 "As a general rule we are obliged to admit that
 a large fox is a wolf, and a small wolf
 may be termed a fox." Foxes are nocturnal

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2 N. & E states rutting season Feb. then fly back.
 Gestation 60 or 65 days. Cubs 5 to 9 - born blind. Leave
 burrows when 3 or 4 months old. Each hunt alone & for itself.

Scalops. Currier oxalid 1 scope

5 Scalops Aquaticus. - Linn.
 Common Am. Shrew mole.

Trox aquaticus Linn.

Telpha fusca, Pennant.

Scalops Canadensis Desm.

Scalope de Canada Currier

Shrew mole Godman

Scalops Canadensis. Barlow

" Pennsylvanica Barlow

" Canadensis Emmons

" Aquaticus Bachman Probst. Found that their

" " De Kay.

Godman's are very correct. Muck gland $\frac{1}{2}$ inch long
 inside thighs near tail. - various colors some
 nearly black. some light cream color. - Cleans its
 coat by passing & re-passing 8 or 10 times through
 the earth. - Run on the edges of their hands, head
 back & back. - Nest oval 5 to 7 inch long x 3
 inch from surface - burrows close to stream in winter
 when less frozen. - Moves back & forth about as fast
 as forward. - One was seen swallowing a toad. One
 made fresh track - one with several hundred yards
 long. - See no traces of their movement

in cold winter weather - only seen them about in a
 thaw. Thinks he does not become torpid. Richardson
 thinks it is not found far north because there are
 no earth-worms. - Thinks they can see but little
 nests, I with below surface - hole large - oak leaves lined
 with soft dried grass leaves - galleries 1 or 2 or 3
 sides - young 5 to 10 - in compartments sometimes
 eat each other. Secour saw meat. Canada Kentucky
 Florida &c. Refers to another species S. Brewsteri.
 see not that the gnawing holes are.

Lepus Americanus. Ex. Leben.
 Northern Hare

Siebre Sagar.

Siberian Hare Kalin

American Hare Phil. Trans. Lond.

Lepus Americanus Ex. Leben

" *Wampus* Schreber

" *Hudsonius* Pallas, Gmel.

Varying Hare Pennant

Lepus Virginianus Barlow.

" *Variabilis* var. Godman.

American Varying Hare Doubtful

The Northern Hare Hudson Ornithology & figure

Lepus Americanus Richardson

" *Virginianus* Bachman

" " Bach.

" *Americanus* McKay.

Summer breed commenced in April - unchanged
 till about beg. of November in lat. of Quebec

1st mid of Nov. in N.Y. & W. Pennsylvania.
 As comes nearly pure white in high N. lat. In lat.
 Richardson thinks it is a blend - and I think so. In lat. of
 Albany always a tinge of reddish brown. In N.Y. weighs
 5 1/2 lbs. does not know that it ever takes shelter in
 a hole in the earth or a hollow tree. Particularly
 fond of fern bush. Eat bark of willow, birch, &
 poplar, & buds of young pines - Asplen leaves &c.
 seeks its food only by night or the early half of the
 evening. Has a habit of thumping in the earth -
 common to most here & rabbits - particularly more.
 light nights - either in haste from a danger - In its
 form it early down in winter - or under a fallen tree top
 as pine or hemlock. Young in May 4 or 6 - lined
 their nest with their own fur - when in confinement.
 Perhaps 2 litters. Poorly fed of all our hares.
 Cannot be taken in traps with impunity - like Gray rabbit.
 Hudson Bay & Ohio & Pennsylvania.

7 *Lepus sylvaticus* Bach. Gray Rabbit

Comy Hemmott; Virginia
 Hare. Sedge Comy Dawson
 American Hare Kalm
Lepus Americanus Olynx
 " " Barlow
 " " Godman
 " " Audubon Birds of Am
 " " Bach. Jour. Ac. Sc. Phil
 " *sylvaticus* " " "
 " *Americanus* Emmons
 " *varius* Schlegel.

Resembles European *S. curvicaudus*. Possesses the habit of the other species of this genus, with which we are acquainted, of stamping with its hind feet on the earth when alarmed at night, and when the males are engaged in combat. No note of recognition - like other species in this - only cries when wounded. No other box one louder & longer. "Though it digs no burrows in a state of nature" when confined can dig a foot under a wall to escape. In N. states young 3 times 5 by 3 bones. Though it can run fast a short distance, an active dog would soon catch it if it did not run into holes. The common & most formidable foe - will eat its head & rostrum again. He can't stem & means of an enemy with its teeth filed down - 12 one morn. 50+ in 3 weeks. Has ^{nesting} seen them tracks far apart in if running fast - & those are nearly in pursuit. & ~~they~~ found the remains of the rabbit. Not heard of it further N than the S part of N. Hampshire. Not abundant in N. except in a few places - On upper Missouri very common - & in prairie S. states. Emmons gives the wrong name & ^{some} wrong synonyms. - 1846

Fiber (only one species.) *Zibethicus* Lin. 8

Musoreus Smith's Virginia

Rat musque Sagard.

Castor zibethicus Lin.

L'Onatra Buffon

Musk rat Larson

Musk beaver Pennant

Musquash Beane

Mus Zibethicus Linn.

Fiber clothing Sabine

Musk rat Godman

Orkatheron Burson Ind.

Musquash, Watrus, or Wachuska, the animal that
 is on the ice in a round form.
 See Indians, (Richardson.)

"Gives the water a smart flash with its tail"
 somewhat like a beaver when it dives. 3 or
 4 entrances usually cut in the bank. From
 these rest several galleries extending further
 for retreats. Sometimes are well connected with
 another. Breathing places in the ice - covered with
 loose grass & open there being frozen over. This
 always lived in holes in the sides of the stream.
 Nutria skins &c being used for hats. Their
 sought. Thinks it omnivorous. Food in
 summer chiefly grasses root, & vegetables.
 Will eat meadow grasses 'clover &c sometimes
 eat turnips - carrots - parsnips - & green corn -
 gnawing off the stalk of the last to come at it.
 Thinks the cat-smash sagittaria sagittifolia root
 from seeing' bit off at about their holes. Pennant
 says they are fond of Acorus calamus - but that
 would not make them eat it. Does not open
 clam shells with their lower incisors - found
 oysters to open them. Found under ice
 sometimes. It is no provision laid up.

When caught in a trap - it is often found torn & eaten
perhaps by its fellows - When shot has found it - carries
it & concealed in the hole without feeder. Saw
no mention of gnawing it legs off. Caught
one $3\frac{1}{4}$ mile from the water - 3 litters
3 to 5 or 6 of each - Mouth of Mackenzie
river at Florida.

Pteromys. Illiger. 13 species
determined. 1 in N. Amer. - 4 in N. Am.

Pteromys volucella. Gmel. 9

As a panicle, Smith's Virginia

Sciurus Americanus volans, Ray

Flying Squirrel, Lawson

La Palatouche Buff.

Sciurus volucella, Pallas

" " Schreber

" " Gmel.

Sciurus virginianus Gmel.

" " Shaw's Gen. Zool.

Flying Squirrel Catesby

" " Kennel's Quad.

Pteromys volucella, Desm.

" " Harlan

" " Goldman

" " Emmons

" " DeKay

Active in twilight & darkness. Will

turn a wheel - never build nest of leaves on
trees & live squirrel in summer - but confine
themselves to a hollow. In all the Atlantic States.
Texas & Missouri. In lower Canada a large
species.

- 10 Mus Rattus - Linn.
Black rat
- Mus. Rattus. Linn.
" " Schreber
" " Gervais
- Ratt. Buff.
Rat. Rotundus Cur.
Black Rat. Penn.
Rattus Pontif. Jan.
Mus Rattus Griffiths' Am. Kingdom
" " Barton
" " Godman
" " Richardson
" " Ammons
" " Schuy.

Sometimes live in crevices of rocks. Eat eggs
young chickens, ducks &c. sometimes young
rabbits & frogs. Young 6 to 4 or 5 litter.
nest of leaves, hay, decayed grasses, & rags &c.
Carried about in ships - a few found in all our
maritime cities - carried both parts of the
world. It is said that it was brought
from the old world.

Putorius - (*putor. lat. a petis/melle*) Cur.
15 well determined - 6 in Am.

Putorius Vison. Linn.
Mink.

11

the Mink Mith' Virginia

Otag Sagard

Tousteren - La Bontan

Mink Kabon

Le Vison Buffon

Mustela vison, Linn.

Mink Lawson

Mustela lutreola Forster

Mink Otter Pennant

Vison Leach.

Jackash Beane

2 { *Mustela vison*, & *M. lutreola* Harlan

Mink Godman

Putorius vison Leakey.

1 { *Mustela vison*, Cur.

Mustela lutreola Sabine, Frank. Gurn.

next to the crone the most distinctive best
of the farm yard. Mink only kills what he
wants - the weasel sometimes the whole flock of
poultry - catch rats - get the fishes' stings
of fish - catch a trout by diving in the water -
sometimes catch frogs, cray fish, & other
meadow mouse - marsh hens (Rallies) &c &c
sometimes climbs a tree to avoid pursuit -
a dozen feet - like the other it loves an old house

it almost always sinks when shot in the water - easily trapped - emits an offensive odor when provoked like the Skunk & vomine -
 Rattling in 'last 17th or 18th Jan in lat. of Albany - young last of Apr - 5 in num. Early tamed. Almost all over N. Am. Kalm says the Swedes called it Muske - Muske being the name of an allied species in Sweden. -
 AEB Thinks it distinct from the *P. luticola* of N. America.

12 *Mus Leucopus*. Rafinesque
 V. Journal Mar. '55

Mephitis - Cur.

17 - Jr. 2 in U.S.

13 *Mephitis Chinga*. - Fiedmann
 Skunk

Pictresque, Hazard

Enfant du Diable, Charlevoix

Skunk - Measel Pennant

Skunk, Beaulieu

Mephitis Chinga, Fiedmann

Pole - cat Skunk Kalm

Viverra *Mephitis* Gmel.

Mustela Americana Deon.

Mephitis " Sabine

" " Barlan

The Skunk. Godman

Mephitis Americana Var *Pudonica* Rich.

Nephitis Chinga, Lichtenstein

" *Chingue Licht.*

" *Americana DeKay.*

Varies much in color - a young one almost all black. In pairs, have lost sight of in the encounter - "This offensive fluid is contained in 2 small sacs situated on each side of the root of the tail, and is ejected through small ducts near the anus." "ejects it in 2 thread-like streams." sometimes more than 14 feet. has a yellowish luminous appearance at night i.e. this fluid. Good for asthma. Formerly shot the young rabbit - is caught by the cat owl. Their dens "have seldom more than one entrance, whilst those of the fox have 2, and often 3. The gallery of the beaver dug by the skunk runs much nearer the surface than that excavated by the fox. Often extending 7 or 8 feet in a straight line, about 2 feet beneath the surface, there is a large excavation containing an immense nest of leaves. Here during winter may be found lying, from 5 to 15 individuals of this species. There are sometimes 1 or 2 galleries diverging from this bed, running 5 or 6 feet further; " into which they can retreat. Generally goes in about Dec. in the N. States, and has not been seen again till near the 10th of Feb. days with no store. A round keeper in the meanwhile. Has seen the young 6 days early in May. Canada, S. States - but most common in the N. State.

Arvicola . Laepide

"They burrow in the earth, feed on grain, bulbous roots & grasses; some are omnivorous, they do not climb, are not dormant in winter, but seek their food during cold weather, eating roots, grasses, and the bark of trees." about 4 species in N. A.

14 Arvicola Pennsylvanica. - Ord.
Vilvov's meadow mouse.

Short tailed mouse Foster

Meadow mouse Pennant

The Campagnol or Mead. mouse of Pennsylvania, ^{Ward's 2nd ed. 1845} Ord, Emmons' Geog.
Arvicola Pennsylvanica, Ord, Vilvov's Mead. fig.

" " Pennsylvanica Barian

" Albo-rufescens, Emmons

" Horvathus "

" " Idkay

"Wherever there is a meadow in any of these states, [the N & E] you may find small tortuous paths cut through the grass, appearing as if they had been partially dug into the earth, leading to the roots of stumps, or the borders of meadows or ditches. These are the work of this little animal." - "Their galleries do not run under ground like those of the shrew mole, or the

mischievous pine-mouse (of Leconte), but extend along the surface sometimes for 50 yards." Food principally roots & granes. In summer herb-grass roots. "When the fields are covered with snow, it still pursues its summer paths, and is able to feed on the roots of these granes." eats the red lily. In severe winter takes various shrubs & fruit trees - sometimes of the thousand when the ground is frozen hard or a little snow. Nests always near surface - sometimes 2 or 3 under one stump, & often on the surface in summer. "A double handful of leaves of soft granes - - of an oval shape, with an entrance on the side." runs & digs well. Rare seen on high grounds or in thick woods. 3 or 4 others 2 & 6 at once which sometimes adhere to the teeth rare dragged along. Caught in traps baited with apple or corn bread. Nocturnal. Very common in N.E. & about Phil. Hudson Bay & Carolinas. Ord, Barlow, & Emmons have made 1/2 mistake list. Quail of rans.

Fact. from W. J. Broderick's Zoological Recreations

"As Mr. Jacquelin observes, it is the volume of air which birds can introduce into their bodies, and the force with which they can expel it, that solve the problem how so small a creature as a singing bird can be capable of sending forth notes so loud" - for so long a time.

Hunter dissecting various singing birds, found the muscles of the larynx & the trachea in the nightingale, & than in any other bird of the same size - and always strongest in the cock bird.

Canary birds, have sung with so much ardor as to burst the vessels of the lungs & die.

James Bannington asserted that a young bird taken from the nest only a day or 2 old - would not have even the call note - species. - Whence then I would ask comes the note of the Eng. Cuckoo?

If a bird sings no particular note occasionally - bird-catchers call it "rubbish"

practising its song when young - i.e. called by bird fanciers & bird-catchers "recording". Bannington says, for the old instrument. At length the bird said to sing his

song round."

describes the "fascinating power" of the
call birds - over wild ones -

"Le Faucon Chanteur of Le Vaillant,
perhaps the only known bird of prey - Currier
says the only known one - that sings
agreeably."

"Few birds are more musical with song-birds
than these island. Not that the woods of
America are mute - but they want the
brilliant variety of song."

Colonel Monlagn brewed a Gold-
crested wren being footed - 3 per minute
in half or 2 minutes for 16 hours each day.

"Le sand martin (Hirundo sparia)
arrives earlier than either of the other
2 species" - i.e. the martin - which is common
with a few. They also have the alpine night
singing & very late in the season.

Still broods have been left Spanish & both
without & martin - & have themselves before winter.

Of the shore birds Alauda alpestris -
"Capt. Sir James Ross, R. N., records one
shot near Felix Harbor, and Capt. Philip
Parker King brought it from the Straits
of Magellan."

Country people still give the name
of "cuckoo-spittle" to the frothy sides of
Tettigonia spumaria, which very one almost
must have observed on plants in the "young."

"In the typical owl, the eyes are set so completely in front, that in order to see anything at their side or a little behind them, they must turn the head entirely, and thus bring the whole concentrating apparatus to bear upon the object." "The external edge of the primary quill-feathers is serrated, so that less resistance is offered, and the flight is performed noiselessly;" -

Garnall says dissection proves the wild swans of N. Am. peculiar & distinct from the 2 European ones.

"In the dogs properly so called, the pupil of the eye is round; this modification of the organization exists in the wolf & the jackal. . . . but the pupil of the eye in the foxes, whose habits are more nocturnal, is vertical."

"One of the most philosophical poets of ancient Rome uses the term 'angri-manus', or 'one-handed', to designate an elephant;"

"This was the only instance known to Mr. Corse, ~~of that particular form in the subject~~ who was indefatigable in collecting accurate information on the subject, of an elephant exceeding 10 feet in height."

Cuvier observes, the teeth in the bill of the Mergansers or Goosanders do not go beyond the horny sheath, and are

not like seen on the bone of the bill."

Facts from *Storer's*
History of Birds -
 5th Edition London 1851

The parrot can lift or depress its upper mandible at pleasure - it not being one piece with the skull as in other birds - hence it can bite very hard.

Part of the leg of a goose weighed about 40 grains - while a similar piece of the leg of a rabbit - without the marrow - weighed 75 grains.

Heat of human body raises the thermometer to 95 or 96 - and heat being 98. - but a parrot raises it to 100 or 101 - a sparrow or robin sometimes to 110 or 111

Thinks bird perishes in severe winters not so much from cold as for want of food.

A wounded heron lived a whole day - breathing solely through a broken portion of the wingbone.

In some birds the skin is entirely separated from the flesh & filled with air vessels.

Bones of bird, except taken young, generally without marrow.

The goat-sucker sometimes called the Wheel-Bird, owing to its making

a sound much resembling a grinning-shell."

the Campanero, or Bell-Bird (Cotinga carunculata) of South America & Africa may be heard tolling at a distance of 3 miles like a distant church-bell - "a slow when other birds are still. - heavy & slow, like a death toll" so that travellers are deceived.

"One person indeed is on record, who, having passed much of his time in boyhood alone, in lonely situations, had by close attention acquired such a knowledge of this language, that from the song of the parents, he knew where the nests were situated, whether they contained eggs, or whether the brood was hatched, knowing even the number of young birds, and their age, before he saw them." - V. Zeanah's Review, on Lord Holland's Life of Pope de Vega, vol. XVIII, p. 36.

"The feathers of a common fowl, Irish weighs 37 ounces, weigh only 3 ounces; and that the entire plumage of an owl weighs only one & a half."

"Some birds, certain eagles, hawks, owls, herons, for instance, are furnished with a very fine dust or powder, which is supposed to be of use in preserving their plumage; -

"The flight of an eagle was sometimes
 a little short of 140 miles an hour."

No slower birds can go 30 or 40 miles
 an hour without difficulty.
 "The flight of the common swallow has
 been computed at 90 miles, that of the
 swift has been computed to be nearly
 180 miles per hour."

He has seen bees & flies - now resting,
 or - now flying - now shooting
 by - a train of cars moving 30 miles an hour.
 & thinks they can easily go 40 or 50
 miles an hour.

A carrier pigeon flew 23 dist. miles at
 the rate of 125 $\frac{1}{2}$ miles an hour.

"The same domestic geese, belonging
 to several Cossack villages, near the river
 Don, in Russia, leave their homes in March
 or April as soon as the ice breaks up, &
 take flight in a body, & the more
 northerly lakes, the breast of which must
 be 5 or 600 miles off, where they breed
 & constantly reside during the summer;
 but in the beginning of winter, the parent
 bird (?) returns with their young ones, each
 alighting with its brood at the door of which
 it belongs."

A black - (*Colanda praterius*) came
 on board a vessel 1300 miles from the
 nearest mainland of S America and
 900 miles from the barren island of Georgia.

The Albatross is seen 2000 miles from land.

"The Frigate Bird - - - surpasses all others in its power of flight, inasmuch as, excepting at the breeding season, it seldom visits the land; and, still more extraordinary is never seen to swim or repose upon the water! Its weather is fitted for the land as for the water - its whole form & internal arrangements are calculated for, it may be almost said, eternal flight. It probably beats a harsh, beneath its throat with air & so inflates itself. In storms rises above them - like a balloon. Never either dives or swims. Watches flying fish."

Turtles come from the Bay of Honduras & the Cayman Isles, near Jamaica, a distance of 450 miles - to lay their eggs.

I never saw guides of them in thick weather!

An eagle's nest is familiar, called an Indian's ladder - learned from me.

"A peasant in the mountainous part of the south of France, observing a great number of wild ducks settled on the ice of a small river that was frozen over, fired into the midst of them, and was surprised to find that not one of them took flight. On going up, he found, that owing to the severity of the frost, they were not only completely fastened to the ice by their feet, but that nearly one half were frozen to death."

" & the northern parts of Iceland, in the Faroe Islands, extraordinary meetings of crows are occasionally known to occur." - not uncommon to find some left dead - some say they are executed by the others.

"Spiders form a very considerable part of the food of the swift, which flies higher in search of insects than any other insect-feeding bird." - Spiders pound in the air.

A little bird - (*Todus viridis*) performs the same office for the crocodile of the west Indies, which is troubled with small flies called *Maringouins* - that the plover does for the Egyptian crocodile - i.e. picks his teeth of them.

Mr Macgillivray's
Description of the Rapacious Birds of
Great Britain. Edinburgh 1836

After saying that Aud. describes the Am.
herring of the Sparrowhawk - which very
nearly allied to the Kestrel - he adds "This
mode of assuming a fixed station
in the air for observation, is, however,
observed in the Ben-hammer, the Sparrow-
hawk [European] & the buzzard. Even
the Osprey, one of the largest of our birds
of prey employs it, -"

has never seen a hawk hunting in the dusk."

The Merlin, Falco Accator, "found in
British America. The name "derived from
the French Emerillon."

After examining Brit & French & Am. specimens
of the Goshawk. Comparing them says,
"are perfectly satisfied & persuaded that
no real difference exists between them."
The name of a corruption of Goshawk.
It was flown at Gese.

"Eagles are frequently assailed by ravens
and skuas, but never by hooded crows, nor
indeed by any other bird whatever, excepting the
goshawk, the peregrine, and some other

birds when they happen to pass near their nests."

say, the Sharp-shinned Hawk is the species most nearly allied to their Sparrow hawk, or *Accipiter nisus*.

"From Hahaites we have seen a double series proceeding:— on the one hand, *Bombus*, *Falco*, and *Accipiter*, ---; on the other, *Agouti* & *Buteo*."

"The genus *Circus* exhibits the nearest affinity to the Owls generally."

"The weight of the most robust eagle I have handled was 12 lb. 14 oz.; that of the smallest male 7 lb. 12 oz.; that of a female eagle only 7 lb. 4 oz."

"The authors of recent date whose accuracy I have found the highest are, Montagu, Mr. Temminck, and Mr. Selby."

"I have seen no figures of birds, excepting those of the birds of America, and some wood-cut, including those of the 'Gardens & Menagerie of the Zoological Society', that did not indicate an utter incapacity in their authors for seizing the characteristic forms & expression of the originals."

He describes 18 Eagles, Hawks as British
 and 9 owls, of which we ap-
 pear to have 1 eagle & 8 hawks &
 5 owls. - or a little more than 1/2
 the whole. V. last page

Facts from The
 "Magazine of Zoology & Botany"
 Conducted by
 Mr R. Jardine, Bart. - P. G. Kelly, Esq.
 &
 Dr. Johnston.
 Vol. 1st "
 Edinburgh &c 1837

Birds of N. America from a report
 of Dr Richardson's Report on the Zoology of
 N. A. at a meeting of the British Association for
 the Advancement of Science. V. last page

About 500 species were now described, nearly
 1/4 of which were common to Europe, and
 about 1/8 to South America. Of those com-
 mon to N. Am. & Europe, there were 39 land
 birds, 28 waders, & 62 waterfowl. Several gene-
 ra were confined to N. America, but only

2 families, the Trochilidae & Pittaciidae, were absent from Europe. The birds of prey in general have an extensive range, some of the N. Am. species being found in the most distant parts of the world, others extend through S. Am., nearly half of them are common to Europe, if we except the vultures, perhaps those in the New World are peculiar to that country. Except the Corvidae, of which $\frac{1}{4}$ are also common to Europe, the rest of the N. Am. land birds are for the most part restricted to that country, and 2 only are of the 52 Sylviidae are found in Europe. h. 300

Snakes -

They quote from Pittman's Journal for Jan. '36. Judge Samuel Woodruff - who finds that Col. Sipleton of Linn. the "vituperous" - & also that the "mouthing snake" "extends from the end of May to the end of September, the largest specimens mouthing latest: - - - - - After the animal, by pressing the part against the wires, had succeeded in thrusting back the skin 3 or 4 inches upon the neck, he left the wires, and throwing his body into a coil round itself, so as to embrace within it the last fold (?) the inverted skin, with a strong muscular

pressure, made at the same time a powerful effort, shot his body forward through the coils, which unfolded one after another, and thus drew off the entire skin." Phil

Migration of Birds in 1836

"The cold & ungenial ^{in the North of England} weather during the months of March, April, & May, delayed the arrival of most of our summer residents from 10 to 14 days beyond the average period of their first appearance, as deduced from a journal annually kept for more than 15 years." Phil.

Facts in Franklin's -

Nor. 7th Journey to the shores of the Polar Sea
in 1819, 20, 21, & 22.

In his first Enterprise near the Cape Melville Lat. ^{E. 64° 28'} we have seen a cast recover 64° 28' "We have seen a cast recover 64° 28' as it leap about with much vigor, after it had been frozen for 36 hours."

"On the 21st of April the ice in the river was measured, and found to be 5 feet thick, & on the same day in refilling the net in Round Rock Lake, the ice there was ascertained to be 6 feet & a half thick, the water being 6 fathoms deep. The stomachs of some fish were at this time opened by Dr Richardson, and found filled with insects which appear to exist in abundance under the ice during the winter." "The blue-berries, crow-berries, and

cranberries, which had been covered, and footed by the snow during the winter, might at this time [the 9th of May] be gathered in abundance, and proved indeed a valuable resource." "On the 14 [of May] a skin appeared."

Depth of the Atlantic.

Greatest depth reached with the plummet "in any sea is in the North Atlantic & this is not deeper than 25000 feet." "The deepest place in the ocean is probably between the parallels of 35° & 40° north latitude, and immediately to the southward of the Grand Banks of Newfoundland." Maury's Physic. Geog. of the Sea. N.Y. 1855.

Climate of the Sea

"On the land February & August are considered the coldest and the hottest months; but to the inhabitants of the sea, the annual extremes of cold and heat occur in the months of March and September." This

The Birds of Long Island
by J. P. Giraud, Jr. N.Y. Wiley & Put.
1844

A correspondent - J. C. Bell says that
Nuttall has in a "late edition of the Land
Birds" on the authority of Dr. Michener repeated
Wilson's error in making the red owl a
distinct species, and not the young of the S. A. O.
Bell has seen both the male & the female one year
old at least still in the red plumage.

G. says of Wilson's Thrush. "Its notes are a
sharp chirrup, occasionally in a strain approach-
ing to a song."

At times the Hermit Thrush is heard chanting
a low & musical song, but it is destitute
of those sweet, clear & rich tones which
characterize the song of the Wood Thrush.
"On ~~the~~ saddleback. . . [man] Mr
Edwards ~~and~~ - - informed me, that in
company with them, he found in the
month of July, eleven nests." of the
Snow bunting.

The *Emberea parvina* "can readily
be distinguished from the former [*E. savannae*]
& the difference is in the coloring, the
lower parts, which in this bird are pale
yellowish-gray, those parts of the pre-
ceding being white; -
A few [*E. himalayensis*] have been
found breeding on the Catskill mts, and in the

woods at Greenbush, opposite Albany, &c.

"In the month of April, & sometimes in the latter part of March, the snow commences building its nest."

It is said he has seen a snail fly a mile at once.

G. grouse come out of their holes in the morning fly in flocks, they have been known to inhale themselves on a long branch & then shot them on after another & another & make their heads against a branch. and also the beginning with the court.

"The whistling noise [of the woodcock] when rising, is produced by the action of its wings. Its note is a sudden quack, which is not often heard except in spring."

The masked gull "appears to have a fondness for the society of the Black-bellied Gull - with which it is often seen associated."

May. of Zool. & Bot. Vol 2
Edinburgh 1838

"Mr Irvine [his papers read before the Botanical Socy of London] in 1836 found 670 species within 2 miles of Hampstead, Middlesex, and 900 within the same distance of Croydon, Surrey. Dr Macintyre [read 1836] found 10 genera, including 23 species of ferns - 65 genera, including 136 species of monocotyledons, - and 265 genera, including 542 species of

Distyledonous plant around Witley Common, Essex. I [Daniel Cooper, nat 1837] have found 61 Natural Orders, 214 genera, including 406 species in Battersea Fields, Surrey - some of them of rare occurrence."

& a Hist. of Conchology - These are the names - 1st Albertus Magnus, Rondoletius, Gesner, & Albrechtus, and a little.

Then Borriani & Lister were the first who treated exclusively of this subject. B. published in '68, & published bet. 1869 & 97. The last was the first conchologist of decided eminence."

Then Reaumur. Then Linnaeus who's Syst. Nat. 1st ed. appeared in '735 but his conchol. system dates from the 10th edition in 1758.

Then Adamson (in value), ranks next to Lister. Then Geoffroy. Then Poli: but above all Cuvier whose system is vastly superior to all preceding. Succeeding methods are mere modifications of his.

"Two kinds of the groups established by Bernart de Jussieu have remained untouched, notwithstanding the progress of botany, and have only been subdivided, without these subdivisions being disjoined from each other."
 which in 1797

"The first principles of the classification are due to Bernart de Jussieu, but the profound and sagacious application of these principles and the true institution of the natural families are due to Cuvier & Lawson."
 de Jussieu's system

"The Sparrow-hawk [Eng.] was frequently as many as 6 young ones."

P. G. Selby in his Fauna of Twissall enumerates 110 species of birds - 7 of reptiles & 6 of fishes. It is in the N part of Northumberland - 700 acres $3\frac{1}{2}$ miles from Newcastle. Elevation above sea 50 to 300 feet.

Red Wings.

Champlain says that soon after his arrival on the coast 6 or 7 leagues southward from Chocomaquet (Quebec) he saw in July 1605 "some little birds which have a song like merles, black except the end of the wings, which are orange," -

Fossil Fishes.

"The living species of Fishes exceed 8000, and those found in a fossil state, and determined by M. Agassiz, already amount to upwards of 2000, -" Mantell's Petrification 1851

Bird Tracks of Connecticut Valley.

First discovered in 1835 in the SW part of Montague. The first practical observer & discoverer that the town birds' tracks were Dr James Slave of Greenfield. Dilworth first gave them a thorough scientific investigation. Mr Marsh afterwards pursued the subject & made a large collection which sold for nearly \$3000 after his death - at Greenfield. Hollants western Mass.

Facts from Dr Kay's Mollusca &
Reptiles - N.Y.

He got 60 or 70 eggs of the snapping
turtle from one spot in N.Y. Says it
is caught also the Loggerhead - & Costa
total length of one 48 inches.

The Salt-water Terrapin *Emys Palustris*
found as far east as the east end of
Long Island. - Not found by Hirsch in Mass.
5 feet & more in length.

Also the smooth Terrapin - same even
as far E as Rhode Island - also salt water
lit.

E. punctata "eats the leaves of the alisma
plantago." prefers salt ponds & clear ditches.
is not much esteemed for food.

The spotted or mottled terrapin (*E. floridana*)
"feeds on insects, frogs, & worms;"

E. insculpta is thought to resemble
the *E. palustris* in flavor - will snap
when irritated

The common box turtle (*Emys carolina*
stuarti) very various in color - sometimes
black. noticed that one that had some
of its scales, once I!! & asks how often
its desquamation occurs - & whether
it is the effect of disease. !!!
would be drowned if kept in water. Eats
"insects, fruits, & edible mushrooms" - "goes

268

into winter quarters in the latter part of September.

The *Cistudo blandingii* was actually observed in N.Y. yet - Is he correct in saying that stores received me from Ravershill N.H.?

Best & I call on them - good dear.

Facts from Overwith's Land
Labor & Gold or 2 years in Victoria.

Grass-seed
"The grass on these hills was up to the waist, and the seeds penetrated our light trousers in all directions, like a mowing machine. It was intolerable. You could not walk without agitating, and we hastened back to the boat as fast as possible. Boots, they say, are the only defense against this nuisance, and the ladies in the bath wear tall laced ones. But to be secure from them, men must wear boots to the hips."

Black flies &
Complains bitterly of "the little black devil fly" - I also of "sand flies"

Snow-flakes

"They were as large as the palm of my hand; and one that I took up from the back of Buff [the dog] would certainly have weighed half an ounce. As that storm proceeded, the flakes diminished to their ordinary size."

"Bull-dog anti-"

"Per giant [an Irishman] captured in too that was annoying him. The head immediately seized the body with its mandibles, and the body began stinging away manfully at the head. The fight went on for half an hour without any diminished sign of life; and then is what they always do"

A Turtle -

The Christ. Int. & Norwicians on their migration through Penn. from Friedens-
bushen to Friedensstadt in 1772, "met
with a peculiar kind of Turtle, about the
size of a goose, with a long neck, pointed
head, & eyes like a dove. It had scales on
its back, & on the lower part of the
belly. On the rest its covering was
soft, resembling leather of a liver color."
Loki's, 'Narrative in America'
3^d part. p. 80

Facts from "Hunting Adventures
in the Northern Wilds,"

by S. H. Hammond.

N. York! 1856

He describes a peculiar large bird in 'Brad-
ley's Pond between the Thawee & upper
Chataugay in the N.E. part of N.Y.
is it not the Holmboia?

Built a canoe in one day "small
of the back of a large porpoise" - "small
mattings or "stattle" as my guide termed
them, cut first some six feet in length,
then being nearly severed in the middle,
were bent together like clamps, confined
and held in contact the ends of the
backs; these formed the bow & stern;

Log, which had found a place in the
pockets of my quiche, was stuffed into
the crevices; over this was poured melted
gum, gathered from around the knots
of the tree we had felled, and from
cracks in the unsound trunks of others
around us; sticks stretched across from
side to side gave it shape, and slim "slat-
dles" laid lengthwise in the bottom, gave
it strength to sustain our weight.

Brigade in order to work
many partridges off the same hemlock:
kept up a constant whistling - while firing.

Says: "a path worn by the deer,
led round the lake".

Says a partridge from them - "Heavily
he straightened himself up, on tiptoe, beat
his wings with against the log on which
he stood, but against his sides, slow at
first, and then faster & faster until the
"drumming" was, for a few seconds, a
continuous sound."

Signs of rain in the wilderness -

Brigade says - "Just listen to the tree -
how, how vividly he jibes all along the shore,
up among the branches of the scrubby trees
that grow on top of the rocks; well, he says,
'it'll rain'. Listen again - to the loon - hear,
with what a loud, clear voice he speaks, &
how it quavers and sinks away into

silence; you haven't heard that voice since
 we left Indian Lake. That loon
 says 'it will rain.' Hark again, &
 you'll hear not a rustling among the
 leaves and branches of the trees, but
 a kind of deep, far-off moaning;
 not the creaking of one tall tree against
 another - a sound that don't seem ex-
 actly to be around either - a sound
 that we seem to hear but can't de-
 scribe; you can't tell what way it
 comes from, whether from the right
 hand or left, that seems to be far
 off, and yet you can't say it is in
 close by; yet it's in the forest all
 around you. Well, that mysterious
 voice says, 'it will rain.' Look at
 that brood of young ducks, scam-
 pering about, dipping their heads un-
 der the water, and letting it run down
 their backs - see the old one, how
 often she sits up on end, and flaps
 her wings as if about flying away -
 those ducks are saying plain as
 day, 'it will rain.' Look at that
 beechwood tree on the point before you -
 see how fan-like it lifts its leaves,
 turning their under side to the
 sun, making the tree-top shine
 all over like silver; that tree is

Telling us 'it will rain.' Even Shack, there in the bow of the canoe, by his uneasy motions, curling himself up in a heap at the bottom, and then as soon as he's fairly settled, getting onto his feet again, and looking out over the water, he says "it'll rain."

Shelling Turtles in the Caribbean Sea.

"When the turtle is caught, they fatten him, and cover his back with dry leaves & grass, to which they set fire. The heat causes the plates to separate at their joints. A large knife is then carefully inserted horizontally beneath them, and the carapace lifted from the back, care being taken not to injure the shell. & too much heat, nor to force it off, until the heat has fully prepared it for separation." Sometimes caught again with the outer coat reproduced - but then it then of 13 scales is one piece. Bands - Waitena
p 47

When pursued by a canoe full of natives in the night. his Ind. plunged his head in the water & crept off they were coming. Shit. 19

Beaver.

"each other striking a blow with their tail as we hear under." Mayne Reid: Desert Home.

The watercourse less than the canyon
 Ibid p 175

Skunk

"The Skunk is a burrowing animal, in cold countries he enters his hole, & stays in a half torpid state throughout the winter." Ibid p 213

Bee Hunting.

Cudjo caught the bee with "his walrus hand" when it was "gorged full" - - - - -
 raised it from the log, & turning it breast upward, with his other hand he attached a small tuft of the rabbit's wool to the legs of the insect. The glutinous paste with which its thighs were loaded enabled him to effect this the more easily. "This ac-
 cident was not to distinguish the bee when it crawled round & flew from the line."
 Ibid p 318

Facts from Mayne Reid's "Forest Evils".

The Tapir

"is the largest land animal indigenous to J. America." The Lama & Guanaco stand higher but are far less bulky. The bears of J. A. are small wild. No very

large land animals were found indigenous
in the southern division of the Am. continent.
There were none of the bovine tribe, as the
buffalo & muskox of N. America; and no
large deer, as the elk & moose of the northern
latitudes. The deer of S. Am., which there
are several undescribed species, are all
small animals." p. 125

Hothe

the Ai (ibute) Hothe or Brachypus "has
a long neck of 9 vertebrae, — the only ani-
mal which has that number." — p. 168

"The Jaguar,

or, as he is sometimes called, 'ounce' (Feli-
Onca,) and by most Spanish Americans 'tiger',
is the largest and most ferocious of all
the American Felidae. He stands 3' in rank
as to these qualities. — The lion & tiger of
the eastern continent taking precedence of
him. Specimens of the jaguar have been
seen equal in size to the Am. tiger;
but the average size of the Am. animal
is much less. He is strong enough, how-
ever, to drag a dead horse or ox to his
den — after a distance of a quarter of
a mile. The spots on

the great river. "How they find these nests, or whether the mothers distinguish their own young and conduct them thither, as the crocodiles and alligators do, is a mystery. With these last the thing is more easy, as the crocodile mothers deposit their eggs in separate places, and each returns for her young when they are hatched, calls them by her voice, and guides them to the pool where they are to remain until partly grown." - - - "Yet an old female turtle is frequently seen swimming about with as many as a hundred little ones after her." But the Indians state the eggs make oil or tortoise butter of them. Perhaps in the different rivers of S. Am. more than a hundred millions of them are deposited every year. In the Orinoco alone, in 3 principal hatching-places, it has been calculated that at least 33 millions are annually destroyed for the making of tortoise butter." - Old Father Gutierrez asserted that "it would be as difficult to count the grass of sand on the shores of the Orinoco as to count the immense number of tortoises that inhabit its margins & waters" and they are destroyed in vast numbers - so thick the rivers would be rendered "unnavigable" by their multitude. This is the "Carapa" or arrow turtle which weighs 40 or 50 lbs. These are many

other species in S. Am. but the breed separately. Some will be seen still at work covering their eggs in the morning - not hiding the presence of their enemies - "These the Indians denominate mud tortoises." Turned on their backs they cannot right themselves - The jaguar seizes them thus & feeds on them at his leisure - scooping out their flesh with his paw - though this is necessary for a man to accomplish with implements.

p. 313

A jurera or taturunga tortoise - 3 feet in diameter - was captured when a flock of shooting an arrow upward which coming down enters the shell. It would move its place off from - & the turtle diving - the head comes off - leaves the shaft of arrow where he is. The method generally practiced by the Indians of the Amazon. "A good horseman such mine can guess within an inch of where his weapon will fall." p. 350

Color of S. Am. Rivers

The "have been changed into white, blue, & black." But there are no red one as in N. Am. - Colored by the soil - yet the white water never settles clear. being colored by "some impalpable substance held in a state of indelible solution." some as the Rio Branco, a white one

with. The Amazon is 'a White R.

"The blue rivers of the Amazon valley are those with clear transparent waters, and the courses of these lie through rocky countries, where there is little or no alluvium, & render them turbid."

"The black streams are the most remarkable. These, when deep, look like rivers of ink; and when the bottom can be seen, which is usually a sandy one, the sand has the appearance of gold." A glass full is dirty like that of a peat bog. Some refer this color to the sarsaparilla roots. - Prob. owing to decaying vegetation. These streams run through the most thickly wooded regions: mosquitoes are not found on these banks !!! p 357.

Tracts from Charles Brooker
Hist. of the town of Medford
1855.

Mr Wolcott of Connecticut - an old tri-
quilted magistrate says (1638): "I made
five hundred hogheads of cider out
of my own orchard in one year!" He
affirms that these hogheads were not
the modern size, but were a larger kind
of barrel. He says: "Cider is 10 s. a hoghead."
p. 15

"We think there is no satisfactory
record of potatoes being in England before
they were carried from Santa Fe, in
America, by Sir John Hawkins,
in 1653." p. 17

There is an oak in Medford about 1/2 mile
NE of the M. R. The trunk "the trunk
is 6 feet in diameter near the ground;" - p. 21

"The hemlock & the holly are only common
among us." - 22

"We find the following record made
March 8, 1631: 'Flocks of wild pigeons
flying so thick that they obscure the
light.'" 24

"In Medford were built 3 of these
strong brick citadels, [green iron boxes]
2 of which yet stand." 35 - 47-88

Bricks from the chimney of the 1st house built in N. H. "are very large, very badly made, and turned to the hardness of granite." 40

"Governor Crutcher's House. — The old 2-story brick house in East Medford, on Ship Street, is one of the most precious relics of antiquity in N. England. — "Then in every season I believe that it has commenced early in the Spring of 1634." It is one of the old forts. V. plate of it. Pl. p. 47 — "has close outside shutters, & port-holes." The bricks "are from 8 to 8 1/2 inches long, from 4 to 4 1/4 inches wide, & from 2 1/4 to 2 3/4 thick." "It is undoubtedly one of the oldest buildings in the U.S.; perhaps the oldest that retains its first form."

Pl. p. 50 a plate of the common old type of house. — showing bare story, which — which in call "a specimen of the 2^d fashion which prevailed in N. E." with one great chimney in the center —

"The next fashion, introduced as an improvement upon these, was the broken or gambrel-roofed houses," — p. 50

"These bridges were only one half the width of the road, and thus allowed fording ways at their sides." 69

"Gosnylyn speaks of the Crutcher's Plantation in 1638, 'on the west of Muddy River, where he has inclosed a park; unquestionable the first park for deer in-

valley in this country." 87

"The largest number of alluvial
taken by one draught from Mystic
River was in 1844; and they counted
some few more than 58000! We
once saw taken, by one draught
from this river, shed sufficient to
fill 6 horse-carts." 386

"The oldest gravestones in the
present graveyard, near Gravelly Bridge,
[would you know them] were brought
from England, and are remarkable
for their width, thickness & weight. The
oldest bears the date of 1691." 425

Rapid Streams in Chile.

"Even on ordinary occasions the
noise of stones striking together be-
neath the surface, as they are borne
along by the current, comes most
audibly to the ear above the rush-
ing sound of the stream over its
rocky bed."

Naval Astronomical Obser-
vatory & Chile p 18.

Facts from The Hunters' Feast

— Capt. Mayne Reid.

New York - in date: ^{but not the just date} '56

Beech woods often remain untouched ⁴²
in the U.S. partly because they do not indicate
a rich soil - but chiefly because it is
difficult to clear them. The green lops
"do not burn readily as those of the oak,
the elm, the maple, or poplar." Hence
must be rolled quite off the ground.

The "brilliant tints" of wild pigeons "fade" ⁴³
in captivity, and immediately after the bird
has been shot. . . . I have often thrust the
wild pigeon, freshly killed, into my game-
bag, glittering like an opal. I have drawn
it forth a few hours after of a dull
leadens hue, and altogether unlike the same
bird. . . . "In the male the [the eye] is
of the most brilliant fiery orange, in-
closed in a well defined circle of red.
The eye is in truth its finest feature, and
never fails to attract the beholder with ad-
miration." - "The flock seen by Wilson could
require 18 millions of bushels of grain every day."
The cougar captures them in the trees.

"The Cougar (Felis concolor) is
the only indigenous long-tailed cat in America

north of the parallel of 30 degrees. The
 'wild cats' so called, are lynxes with short
 tails; and of these there are 3 distinct species.
 but this is the only true Felis. This is the
 panther or "painter" of Angl. Americans - the
 "lion" (león) of most parts of S. Am. & Mexico -
 the "puma" or "puma" of Peru. The absence
 of stripes, such as those of the tiger - or
 spots, as upon the leopard - or rosettes,
 as upon the jaguar, have suggested the
 name concolor. "The cougar
 of mature age is of a tawny red color,
 almost uniform over the whole body, though
 somewhat paler about the face & the parts
 underneath." Only in its color resembles
 the lion. "For the rest, it is much more
 akin to the tigers, jaguars, and true
 panthers." May not be forward to
 64 black man now. after 200 years
 of hunting - but no doubt they once were
 a more formidable, as still in some
 parts of S. America. R. knows only
 of "a deep-brown righ" - "as if one were
 & utter with an extremely guttural ex-
 pression the syllables 'co-oa', or 'couger'.
 Is it from that he derives his trivial name?"

The hinder legs of the munguarts
 are halfe webbed. Those of the beaver are
 full-webbed. Tail flat & scaly like the

beavers - but not horizontally flat. - "its body is about half as big as that of a beaver. It possesses a strange power of contracting its body, so as to make it appear about half its natural size, & enable it to pass through a chink that animals of much smaller dimensions could not enter." Linnaeus named it with the beaver & R. Thinks it should not be there. "The fur is a soft, thick down, resembling that of the beaver, but not quite so fine." "The habits of the muskrat are singular - perhaps not less so than those of his cousin the beaver, when you strip the history of the latter of its many exaggerations. Indeed the former animal, in the domesticated state, exhibits much greater intelligence than the latter." While the beaver disappears or becomes solitary as the former beaver, the muskrat keeps its place. "Part of the year the muskrat is a social animal; at other seasons it is solitary. The male differs but little from the female, though he is somewhat larger & better furred." "It is believed the connection continues during life." "In a breeding place in bank often under water. The male takes no part in their education; but during this period abstinence, and wanders about alone" - but joins the family in autumn. In the

fast "constructs a dome-shaped pile, hollow within; and very much like the 'house of the beaver.'" --- "frequently tenons are made to admit of a dry seat, in case the ground-floor should get flooded."

The whole family occupy this all winter - only going out when necessary - & in the spring freshet. "In southern climates - in Louisiana, for instance - the swamps & rivers do not freeze over in winter." The muskrats do not construct a house but live in the banks. In the "regions of the Bad-lands." "As soon as the ice becomes strong enough to bear his weight, he makes a hole in it - & over this he constructs his dome-shaped habitation, bringing the materials up through the hole, from the bottom of the lake." "He covers the roots of several species of nymphææ, but his favorite is calamus root (calamus or acorus aromaticus). It is known to eat shell fish, --- Some doubt that it eats fish, but the same assertion is made with regard to the beaver. This point is by no means clearly made out; ---

For more V. see book 1010

& sometimes however it is frozen over - & they lay on one another till all perished.

The swans often build on the top of old smoke-
stack houses.

Pennyroyal buried & matted on the face - or
better the essence of the same - keeps off mos- 93
quitoes.

Of "inhabitants of America" - than the raccoon
"None has a wider geographical distribution,"
98 as its 'range' embraces the entire
continent, from the Polar Sea to Terra
del Fuego. "fond of unios." "There
it opens as about with its claws as an
oysterman could with his knife. It is per-
tinent to the soft-shell crabs and small for-
tresses common in the American waters."

"Button wood", from the tree of which
its wood is sometimes put.

No such animal as the Peccary ever is
found E of the Mississippi.

The canvas-back feeds on 127
a species of Vallisneria - a grass-like
plant, standing several feet out of the
water - "called 'wild celery'". This
grows only in brackish water - i.e., between
salt & fresh.

Makes 4 bears - black - brown - 175
grizzly - & polar. The black bear comes down
a tree backwards unlike the feline.

The skin of the common deer "is toughest
when in the red", thickest "in the blue", and
thinnest "in the grey". 190

They lick the earth - at salt licks - "The
 193 consequence of this 'bit-eating' is, that
 the excrement of the animal comes forth
 in hard pellets; -"

218 Grouse bear not found in the U.S.
 i.e. before California. "has no affinity
 with the forest." - "his favorite haunts
 are the thickets of Corylus rubus,
 & Amelanchiers, under the shade
 of which he makes his lair, and upon
 the berries of which he partially sub-
 sist."

251 The horns of the moose "are
 annually caducous, however, as with
 the common deer, so that these im-
 mense appendages are the growth of a
 few weeks!"

256 The striped maple - "is one of the
 first productions that announces
 the approach of spring. Its buds &
 leaves when beginning to unfold, are
 of a roseate hue, and soon change
 to a yellowish green; -"

John Bateman's Travel
from Plinast. to Onondago - & Niagara.
A Rattlesnake

"We took notice that while provoked,
he contracted the muscles of his scales
so as to appear very bright & shin-
ing, but after the mortal stroke, his
12 plinastor became much diminished, this
is because the case of many of our
snakes."

Bears
"We observed here an old cow which
the bears had cunningly turned up
66 the nails, beetles & grubs, that
had crept under it - for shelter."

70 In 1743 first observed the Caledonist on
the 11th of August.

Niagara
B. gives a letter of Kelms to a friend
- Philadelphia dated Albany Sep. 2 1750.

in which -
85 "All the gentlemen who were with me,
agreed, that the farthest one can
hear it, is 15 leagues, and that very
 seldom. When the air is quite calm, you
can hear it at Niagara; but seldom at
other times, because when the wind blows,
the waves of the lake make too
much noise there against the shore.
Sometimes, in fact, the

Fall makes a much greater noise than at other times; and this is looked upon as a certain mark of approaching bad weather, or rain; the Indians ^{here} hold it always for a sure sign.

Water-fowl destroyed.

- 87 "as swans, geese, ducks, water-hens, teal &c. like. And very often great flocks of them are seen going to destruction in this manner: they swim as the river above the fall, and so are carried down lower & lower by the water, and as waterfowl commonly take great delight in being carried with the stream, so here they indulge themselves in enjoying the pleasure so long, till the swiftness of the water becomes so great, that it is no longer possible for them to rise, but they are driven down the precipice, & perish. They are observed when they draw nigh the fall, to endeavor with all their might, to take wing & leave the water but they cannot. In the months of September & October, such abundant quantities of dead waterfowl are found every morning below the fall, on the shore, that the garrison of the fort for a long time live chiefly upon them; besides the fowl, they find also several

rocks, great fish, also deer, bears, &
 other animals which I have tried to
 cross the water above the fall;
 some told him that birds flying into the
 water with the fall - do not perish by having
 their wings wet, or being frightened, as
 is said - but only water-fowl on the
 water - The commander &
 of the Fort once saved some Indians
 that had been cut on a p. of a Island
 by providing them with poles pointed
 with iron "Each had two such poles
 in his hands, to rest against the bottom
 of the stream, to keep them steady."
 This after being 9 days on the Island.
 The Ind. used after about 5 or 6 weeks seen
 that were cast on the Island - in this way

92 "Below the fall, in the holes of the
 rocks, are great plenty of eels, which
 the Indians & French catch with their
 hands without other means; I once
 saw 2 Ind. boys, who swiftly came
 up with about 20 fine ones."

was told at St. Lawrence that a man
 could collect below the fall in one day
 feathers enough to fill several beds. which
 "came off the birds killed at the fall" -
 but the French told him they had never
 seen any such thing - though there might
 be so many feathers on the dead birds.
 end of Kalm's letter

The 'Lead Plant'

"*Amorpha canescens*, (Nutt.) July. This is 'the
noted Lead Plant' of Iowa & Wisconsin.
Its value as a mineral indication may probably
be summed up in this. It attaches itself with
most luxuriance to rocky crevices and spots
about which the peculiar dry earth, in-
dicating a mineral vein, exists, and the miner
is thus guided in making his excavations.
Farther than this any definite relation with
the lead-bearing rocks is sufficiently dis-
proved by the extensive geographical range
of this plant, from British America to
Texas.

Catalogue of Plants of Wisconsin & Minnesota
by C. C. Parry M.D. in Owens, Geol. Surv. of
Wisconsin, Iowa, & Minnesota - p 611

Sand Cherry - *C. Purshiana* - as before
occurs on the sandy banks of Lake St Croix,
& beach of Lake Superior - p 611

Soapwort Gentian

"*Gentiana Saponaria* (L.) moist river banks.
Upper St. Croix. A pure white variety is
often met with." Ibid p 617

Beaver

In Beekworth's Life "Adventures" p 69.
 it is said on raising their traps, "we found
 a beaver in every one except 4, which contained
 each a leg, the beaver having amputated
 them with their teeth."

In the same p 510 of

Grizzly Bears

"They are seldom known to attack a man un-
 less wounded; -"

My Year Locusts

"The Spring before, especially all the
 month of May [1634], there was such
 a quantity of a great sort of flies,
 like for biggers to wasps, or bumble-bees,
 which came out of holes in the ground,
 and replenished all the woods, and
 ate the green things, and made such
 a constant yelling noise, as made
 all the woods ring of them, & nearly
 to deaf the heard. They have not yet
 English been heard, or I seen before or
 since. But the Indians told them that
 sickness would follow, and so it did
 in June, July, August, and the chief heart
 of summer." Bradford, Hist. of the Plymouth
 plantation p. 315

A Great Wind.

[1635]

"This Year, the 14th or 15th of August (being Saturday) [The Editor says the 15th & that Winthrop was in making of the 16th & for further account refer to Winthrop & A Youngs Chronicle] was such a mighty storm joined even as none living in these parts, either English or Indians, ever saw. Being like (for the time it continued) to those hurricanes & Tuffoons that writers make mention of in the Indies. It began in the morning a little before day & grew westerly degrees, but came with violence in the beginning & the great amazement of many. It blew down sandy beams, & uncovered others; many vessels were lost at sea, and many more in extreme danger. It caused the sea to swell, & the southward of this place, above 20 foot high, right up & down, and made many of the Indians climb into trees for their safety; it took off the boarded roof of a house which belonged to the plantation at Manamet, & floated it to another place, the posts still standing in the ground; and if it had continued long, it without the shifting of the wind, it is like it would have drowned some part of the country. It blew down many hundred thousands of trees,

turning up the stronger of the roots, & breaking the higher pine trees in the middle, with the tall young oaks & walnut trees of good height were wound like a withe, very strong [sic] & fearful to behold. The-
 gan in the S.E., & parted toward the south & east, and veered sundry ways; but the greatest force of it here was from the former quarters. It continued not, in the extremity, above 5 or 6 hours, but the violence began to abate. The signs & marks of it will remain this 100 years in these parts where it was worst. The moon suffered a great eclipse the 2^d night after it." Whit. p 337

Earthquake -

Bradford describes an earthquake the 1st or 2^d of June. Winthrop says the 1st 1638 "The earth shook with the violence as they could not stand without catching hold of the posts & poles that stood next them." Whit. p 366-7

Facts from
 "Lake Ngami" &c -
 by Charles John Andersson

N.Y. Harper '56 - an Eng. Monthly

Effects of Heat

- 101 "Even the gum-stocks made of the best English walnut, lost from eight of an inch of their original solidity." The gentleman Stuart, the Australian traveller, is saying - that these horn handles & combs "were split into fine laminae - our hair, as well as the wool on the sheep, ceased to grow, and our nails had become brittle as glass."

Heavy wood.

- 104 "The wood [of the Kameel-joorn] is so heavy, that, after being dried for years, it will sink when thrown into the water."

Ant hills

- 135 He saw some made by the termites a while out which "measured as much as 100 feet in circumference, & rose to about 20 in height!"

A Deep Lake

- 180 The Otjikoto Fountain "is scooped out of the solid limestone 'rock'" - "The form of Otjikoto is cylindrical; its diameter upward of 400 feet, and its

depth, as we ascertained by the lead line,
215 " i.e. at the side, but the ~~depth~~ ^{depth} ~~was~~ ^{was} uniform, having observed several
similar cavities on a very much smaller scale
which were dry - shore bottoms were flat.

"The giraffe, the koodoo, the gemsbok,
the eland, &c. - - - either wholly or in 207
great part can do without water."

The *Bruchago Africana*

"alighted on the backs of the cattle for 212
the purpose of feeding on the ticks with
which their hides are covered." They do a
similar service to the rhinoceros, besides
acting as sentinels. - & also a.c. & Cummings
(say, Anderson) attend on the hippopotamus

The nest of the *Amadina Squamifrons*
is made of a beautifully soft material
213
whitish sheep's wool & is used by the
Hottentots for gun-wadding. "Just above
the entrance is a small hollow, which
has no communication with the interior
of the nest, - - - In this tube the male
bird sits at night."

Cattle smell Grass!

"There can be little doubt that the 240
instinctive power of animals - domesticated
as well as wild - is capable of estimating
the scent of humid winds & green herbage

large at a very great distance. Thus I have often seen oxen turn their heads toward the quarter where distant lightning indicated that rain had fallen, & sniff with evident pleasure the breeze produced by colder air." & he quotes Moffat as saying that "Apikaner thus lost the greater part of his cattle. One evening a strong wind commenced blowing from the north; it smelt of green grass, the natives & penned it. The cattle, not being in folds, started off after dark. It was found, after much search, that 1 thousand of cattle had directed their course to the north. A few were recovered, but the majority escaped to the Samara country, after having been pursued hundreds of miles."

The Ostrich.

Pursuing on foot ostriches with young
 248 the male laid fell down & pretended
 to be wounded & drew them off. — Ranch
 250 extends further east than the deserts of
 Arabia. Throughout the Indian Archi-
 pelago, the family of birds (of which the
 ostrich is the leading type) is represented
 by the Casuarina; in Australia by the
 emu; in the southern extremity of
 the Western Hemisphere by the rheas;

and even in Europe, though somewhat
 departing from the type, it has its repre-
 sentative in the stately bustard. - - -
 "A single blow from its gigantic foot 251
 (it always strikes forward) is sufficient to
 prostrate, nay, to kill many beasts of prey,
 such as the hyaena, the panther, the
 wild dog, the jackal, & others. - - -
 Several African travellers - say, A - speak
 of small stones as found in their eggs. 254
 - - - "The Copts (of whom the eggs are
 looked upon as the emblem of watch- 256
 fulness, and who implant them in their
 churches) pass the words of their lamps
 through the shell in order to prevent the
 rats from coming down & drinking the
 oil. - - - The skin as some writers
 "is used as a cuirass by some of the Arab
 troops." - - - It never associates 257
 with birds, but then with animals. In-
 deed, in many respects it bears a striking 259
 resemblance to four-footed animals, such
 as in its strong jointed legs & cloven hoofs,
 its long muscular neck, its gruff voice,
 [which he had said very much resembled the
 lion's]. The absence of the elevated cen-
 tral ridge of the breast bone, so gen-
 erally characteristic of birds, &c. He
 had already mentioned the rudiment of
 a gall-bladder. & several particulars
 it especially resemble the camel. "Indeed,

300

to many of the nations of the East, as well as to the Romans & the Greeks, the district was known by the name of the camel-bird."

Butterflies

- 267 "This day, & during the whole of the following, we encountered myriads of lemon-colored butterflies. Their numbers were so great that the sound caused by their wings resembled the distant murmuring of waves on the sea-shore. They always passed in the same direction as the wind blew and, as numbers were constantly alighting on the flowers, their appearance at such times was not unlike the falling of leaves before a gentle autumnal breeze."

The Rhinoceros

- 384 "a common leather ball will find its way through the hide with the greatest facility" — though you should not be very far off.

Lake Ngami's

- 425 "whole circumference is probably about 60 or 70 geographical miles?"

Red Snow -

"We passed the 'Crimson Cliffs' of Sir John Ross in the forenoon of August 5th. The patches of red snow, from which they derive their name, could be seen clearly at the distance of 10 miles from the coast. It had a fine deep rose hue, not at all like the brown stain which I noticed when I was here before. All the gorges & ravines in which the snow had lodged were deeply tinted with it. I had no difficulty now in justifying the somewhat poetical nomenclature which Sir John Franklin applied to this locality; for if the snowy surfaces were more diffused, as it is no doubt earlier in the season, crimson would be the prevailing color."

Barrow, 2^d Expedition V.I. p. 44

Snow Birds

Apr. 10th '53 "The sea-mallows, which abounded when we first reached here, and even the young burgomasters that lingered after them, had all taken their departure for the south. Except the snow-birds, these are the last to migrate of all the Arctic birds." *Ibid* p. 105 — "On the 10th of May [1854] these charming little migrants the snow-birds, ultima cackidum, which only left us on the 4th of November, returned to our ice-crowned rocks, whence they

seen to fill the sea & air with their sweet
 jargon." Ibid p 235 still
 at winter quarters of Advance on
 coast of North Greenland ~~at~~ lat $78^{\circ} 39'$

Putrefaction

"The Greenlanders say that extreme
 cold is rather a promoter than other-
 wise of the putrefactive process."
 - "Our Buffalo hunters — have
 told me that the musk-ox is some-
 times carned after 5 minutes exposure."
 K. thinks it applies to all gregarious
 animals. Ibid 2^d vol. 52

Warmth within Ice.

Where Kane was, the mean temperature
 of the year was below zero - yet
 "these great Polar glaciers retain a
 high interior temperature not far from
 32° ." Ibid p 208

Rocking Stones

Rocks fall from the cliffs owing
 to effect of frost & then in the ice-
 belt - & gradually sink below its surface
 into it. Then others of various forms
 & sizes come fresh upon the former.
 "This, as the ice belt unbridled in the

gradual thaw, had given many ex-
amples of the rocking-stone. He gives
plates. Ibid 227

Temperature was observed in
"The lowest temperature was observed in
February, when the mean of 8 instruments in-
dicated minus 70° Fahrenheit." Ibid 304

(ow-birds

"In America, the 'cow-bunting' (*Otocoris*
bicoloris) is so termed from its habit of
feeding upon the parasite insect of cattle;
and among other animals it is a constant
attendant upon the immense herds of
buffaloes that roam over the great Ameri-
can prairies." Mayne Reid "Young Eagles
in 287. Years of British Birds

(ougar

"I have seen 2 species of the American panther,
or cougar, (*Felis*). The cougar and panther
formidable inhabit the west & mountain-
ous regions. It grows to the height of 3
feet, with a body about 6 feet long ex-
clusive of the tail, which is full 2 ca-
half feet in length. Its color is a
dark brown deepening on the back,
and almost white on the belly."
"The other is found in the north
of

bordering on the prairie, is about
the length of the former, but much
higher, and more slender; its color
imitation of the tawny; it is far
less ferocious, and preys on the buffa-
lo, elk, and deer. "Hunters Narrative
p 172

Respecting their present value p p 83 & 120
H. Larsson below ^{4 horses}

In Daniel Webster's "Memorandum of
Mr Jefferson's Conversations" - Being about
sunk from Philadelphia for France,
I observed an uncommonly large panther
skin at the door of a hatter's shop. I
bought it for half a 90 (nineten dollars)
on the spot, determining to carry it to
France to convince Monsieur Buffon
of his mistake in relation to this ani-
mal; which he had confounded with
the cougar. He acknowledged his mis-
take, and said he would correct it in
his next volume. "Webster's Private Con-
ference p 391

Moose

"I told him [Buffon] also that the rein-
deer [which he had confounded with our moose]
could walk under the belly of our moose;
but he entirely discounted the idea. Where-
upon I wrote to General Sullivan of New
Hampshire. I desired him to send me the

bones, skin, and antlers from moose, supposing they could easily be procured by him. Six months afterwards my agent in England advised me that General Sullivan had drawn on him for 40 guineas. I had forgotten my request, and wondered why such a draft had been made, but I paid it at once. A little later came a letter from General Sullivan, setting forth the manner in which he had complied with my request. He had then obliged Francis a company of nearly 20 men, had made an excursion towards the White Hills, camping out many nights, and had at last after many difficulties caught my moose, boiled his bones in the shortest, stopped his skin & remitted him home. This accounted for my debt, and covered the Buffon. He procured in his way & volume & set these things right also, but he died shortly afterwards. The same
from the same p 372

Facts from Edison's Carolina.

"The growth of the tree [helmeto] is not perceptible in the age of any man, the experiment having been then tried in Bermuda and elsewhere."

He drank at Spring "coloring the experiment of travellers (& its chalybeate quality) as black as a coal."

306

28 "From this nation of Indians [on a small
260 branch of the Santee] until such time as you
come to the Turkeivuroos in North Carolina,
you will see no long men upon the tree;
which span of ground contains about 500
miles - owing to the higher & dryer of the
land.

32 See streams of a bluish cast - "The things
that feed these rivulets, lick up some
poisons [sic] & the stones in the brooks; which
discoloration gives their tincture."

46 Arrive^{ing} at the Cape Fear River.
(he calls it Step Fair) "This most pleasant
river may be something broader than the
Thames at Kingston, keeping a contin-
ual pleasant warbling noise, with
its reverberating on the bright marble
rocks."

100 Of the Sycamore [buttonwood] its bark is
the most beautiful I ever saw,
being mottled & clouded with several colors,
as white, blue, &c."

109 "A peach falling on the ground
brings a peach tree that shall bear in 3
years, or sometimes sooner. Eating peaches
in our orchards makes them come up
so thick from the kernel, that we are
forced to take a great deal of care & weed
them out; otherwise they make our land
a wilderness of peach trees; -

Of bears - they come down a tree last foremost.
 - "At catching & herring they are most expert
 fishermen. They sit by the creek side, (which
 are very narrow) where the fish run in, and
 then they take them up, as fast as it possible
 they can dip their paws into the water." Then
 "a plate of it - "No man - - has ever
 killed a she bear with young." They conceal themselves
 "Some years ago there were killed 500 117
 bears in 2 counties of Virginia, in one winter;
 & but 2 she bears amongst them all, which were
 not with young, - "A ^{Magnum Redit; Boy Hunter 184} D. Book no 10.
 The paws held for the best but - the head
 the worst -

Of the Panther - he is "of a reddish color, 118
 the same as a lion. - - - very strong limbed,
 catching a piece of meat from any creature
 he strikes at. - - - No creature is so nice
 & clean as this in his food. When he has
 got his prey, he fills his belly with the
 slaughter, and carefully lays up the re-
 mainder, covering it very neatly with
 leaves, which if any thing touches he never
 eats any more of it. He purrs as cats do.
 - - - He hollows like a man in the
 words, when killed, which is by making
 him take a tree, as the least cur will
 presently do, - - - His skin is a warm
 covering for the Indians in winter, though
 not esteemed amongst the choice furs. This
 skin dressed makes fine women's shoes, or

- men's gloves. & below.
- 119 Wolves "When they catch a prey, they go
 on a swamp, and fill their belly full of mud;
 if afterwards they chance to get anything of
 flesh, they will disgorge the mud & eat
 the other." "The fur makes good
 muffs. The skin' serves for parchment
 makes the best drum-heads, and if tanned
 makes the best sort of shoes for the sum-
 mer countries."
- 120 "Tigers are never met withal in the settle-
 ment; but are more to the westward,
 and are not numerous on this side the
 chain of mountains. I once saw one that
 was larger than a panther, & seemed to
 be a very bold creature. The Indians that
 hunt in those quarters, say, they are sel-
 dom met withal. It seems to differ from
 the tiger of Asia & Africa."
- 118 describes experiments to plate the wild
 cat falling from a tree on a deer & noting
 its blood.
- 120 Food of the beaver chiefly bark of "Sassafras
 ash, sweet-gum" &c &c Their leather
 "makes the best hedges mittens that
 can be used."
- "If a cat has 9 lives, this
 possum surely has 19; for if you make
 every bone in their skin, you may come
 an hour after, & they will be gone quite away;

The Raccoon "goes" is a masher, where ¹²¹
standing on the land, he let his tail hang
in the water. Then the crab takes for a bait,
and fastens his claws therein, which as soon
as the Raccoon perceives, he goes suddenly
springing forward a considerable way
on the land, and brings the crab along
with him."

The musk "is an enemy of the Tor- ¹²²
toise, whose holes in the sand, where
they hide their eggs, the musk finds
out, & scratches up & eats. The raccoons
& crows do the same."

The fallow deer have sometimes both in
their throat "A. the summer approaches" ¹²⁴
these both come out, & turn into the finest
butterfly imaginable, being very large & having
black, white, & yellow stripes."

The gray fox "When hunted they make a ¹²⁵
sorry chase, because they run up trees,"

Alligators dwell in holes in the banks ¹²⁶
"the hole or mouth of their dens lying
commonly 2 feet under water, after which it
runs into it he considerably above the sur-
face thereof. Here" they sleep all winter.

Never denizens men in Carolina - but some
& dogs. One had his hole directly under
Lawson's house & startled him with his roaring.
"how long they are in hatching, I can-
not tell, but, as the Indians say, it is
most hard for the summer"

lay by a spring side, the young living in about
 the same a soon as hatched. Their eggs are
 laid in nests made ^{in the marshes,} & contain
 20 or 30 eggs. ^{They are laid by the male.} The teeth of this
 creature, when dead, are taken out, & to
 make chargers for guns, being of several
 sizes, fit for all loads. "After the
 tail of the Alligator is separated from the body,
 it will move very freely for 4 days."

129 Never known any more than a rattlesnake
 - when in the charming power - & exerts an
 charming & graceful. They are much more
 voracious in the months of June & July, than
 the one in March, April, or September. The
 hotter the weather, the more poisonous.

132 of the bull-frog - "I believe I have seen
 one with as much meat on him, as a
 pullet, if he had been dressed."

The black-male "kills the
 132 rattlesnake, wherever he meets him,
 by twisting his head about the neck of the
 rattlesnake, & whipping him to death
 with his tail. (It is a plate 207) This
 shepherd haunts the dairies of careless
 housewives, & never misses them. The
 milk stealer of the cream. He is
 an excellent egg merchant, for he
 does not make the eggs, but swallows
 them whole (as all snakes do.) He
 will often swallow all the eggs from

under a hen that sits, & coil himself under the hen in the nest. --- This snake, for all his agility is so brittle, that when he is pursued, casts his head into the fork of a tree, if any body gets hold of the other end, he will twist & break himself off in the middle."

Turtles "None of these sorts of creatures eggs will ever admit the white & the harder than a jelly; yet the yolk with boiling, becomes as hard as any other egg."

The land Tortoise - "They are an utter enemy of the rattlesnake, for when the Tortoise meets him, he catches hold of him a little below his neck, & draws his head into his shell, which makes the snake beat his tail, and twist about with all the strength & violence imaginable to get away, but they ^{terribly} soon dispatch him, & there leaves him." These they will in Europe the land tortoise: their food is insects, tad-poles, or young frogs, mushrooms, the dew & shine of the earth & herbs."

The bald eagle - "These birds con- 139 timally meet the year round; for when the young eagles are just downed --- the hen eagle lays again, which eggs are hatched by the warmth of the young ones in the nest, so that the flight of one bird makes room for the next of

- ~~that~~ are just hatched. " carry off
 young pigs
 137 The fishing. Hawk is the eagle, jack-
 ab. " " " " The eagle & this bird
 seldom sit on a living tree."
 138 Woodcock "they make a noise (when
 one on the wing) like the bells about
 a hawk's legs."
 "the year 1707, which was
 141 the hardest winter that ever was known
 since Carolina has been settled by the
 Christians."
 Some oaks were called Turkey oaks
 & their fruit Turkey acorns, because the
 141 turkeys fed so much on them
 describes the great flocks of pigeons
 for a page & a half - when he asked
 the Indian where they bred - "they pointed to-
 wards the vast ridge of mountains" -
 at their roosting place he hung his head
 a foot thick.
 142 Parakeets - "Of these & the
 Alligators there is none found to the
 northward of this province."
 Of a woodpecker "as big as a
 pigeon, being of a dark brown color,
 with a white crown on his back, his
 eyes encircled with white, and on his head
 stands a tuft of beautiful scarlet
 feathers. His cry is heard a long way;

and he flies from one rotten tree to another, to get grubs, which is the food he lives on."

[This last is a good account of woodpeckers generally.]

Of the least woodpecker he says truly - "He is not very wild, but will let one come up to him, then stoop on the other side the tree, pass your sight, and dodge you for a long time together."

The mockingbird - They often sit 143
near our chimneys in summer, then being so free in them, and sing the whole evening, and most part of the night.
"Will willet" is so called from 147
his cry which is very exact, calls Will Willet as he flies."

"The sea-cock is a gull that crows at break of day & in the morning, exactly like a dunghill cock."

"The blue-wings are less than our ducks, but fine meat. These are the first birds that appear to us in the fall of the leaf, coming then in great flocks, as we suppose, from Canada, and the lakes that lie behind us."

"Rapt fowl includes all the sorts of small ducks & teal that go in rapt 150
along the shore."

Pelican - They make these pious of his maw."

Gannet - "His fat or grease is

as yellow as saffron, & the best thing
known to preserve fire-arms from rust."

153 Describe the hole "from which
the Perma Coets is taken."

of the Bottlenose - & the shovel nose whale

153 - "These fish seldom come ashore with
their tongues in their heads, the thrasher ---
--- eating that out of his head, as soon as
he & the sword fish have killed him."

154 The 'Devil Fish' - "has been
known to weigh 2 sloops' anchor, & run
with the vessel a league or 2, and finding
her back against tide, & a lea at the
same place."

154 Of the ^(Bottle Nose) ^{which are of} ^{the whales used for a dip. species in Gulf of}
black fish ^{in the} - They are never seen to swim
knowing, as sometimes all other fish
do, but are continually running after
their prey in great shoals, like wild
horses, leaping now & then above the
water."

158 Salt water trout. "They are so tender, that
if they are in ocean fresh water, and a
sudden frost come, they are benumbed
& float on the surface of the water,
as if dead; and then they take up
canoe-bats of them. If you push
them into warm water, they presently
recover."

Sturgeon - fresh water - "The bones of these
fish make good nutmeg-water."

Fact from Pursh's Flora.

Verbascum Thapsus - "probably introduced."

Vitis labrusca "Berries black, large, & of agreeable fox-mell, commonly called Fox-grape."

Angelica Atropurpurea - - - "root very fragrant."

Plutheia biennis - "in a dark night, when no objects can be distinguished at an inconsiderable distance, this plant when in full flower can be seen at a great distance, having a bright white appearance," -

Scirpus Frondosus var *lanceolatus* -

"called by the country people Blue tangle."

V. Compositum "berries black, insipid"!!

Phytolacca decandra. "The young shoots in spring give a fine vegetable for the table, resembling asparagus."

Tilia glabra - - - "lime or lime tree; bass-wood; Spoonwood;"

Sambucus purpurea. "They bear cultivation in pots filled half way with sphagnum extremely well."

316

"The Voyage of Nearchus
from the Indies to the Euphrates" &c
by William Vincent -
London - 1797.

Alexander - "You," said the Bramin
Mandanis to the King, "are the only man
whom I ever found curious in the inves-
tigation of Philosophy, at the head of
an army." Strabo li. vii.

Belon & Diogenes "are said to have
reduced, not only the marches of the army,
but the provinces themselves, to actual
measurement." - "The survey itself is
attested by almost every contemporary historian,
but was extant in the time of Strabo &
Pliny." <sup>Strabo said "The Mahomedans of India measure every road
they march" Delaporte.</sup>

18th page - "An account of the first naviga-
tion attempted by Europeans in the Indian
Ocean." - "The narrative of
this voyage has been preserved by
Arrian, who proposes to give an extract
from the journal of Nearchus" - It
authenticity has been disputed - but V. Smith
it presents "every internal evidence of fi-
delity & truth." "Translation 2
the narrative are to be found in
Pamplis, Oblancourt, Rook, and
Harris," - W.B. Campbell's edition of the
last.

made of that material, the sugar-cane and silk, are all expressly mentioned in a passage which the [Strabo] adduces from Nearchus; and however the Greeks or Romans became afterwards acquainted with these commodities, the first knowledge, or at least the first historical account of them, is certainly due attributed to the Macedonians. None of these articles had ever been brought into Greece, or any part of Europe, by sea, and few of them had ever been seen unless by accident;— p. 14.

Cocoa's shade

"We are told in verse 'in cocoa's pathos shade'. But to realize the prose picture, let the home reader, choosing some hot August day, fasten a large fan to a long pole, & enjoy himself under it."

The 'mimosa', near Kiez, is much better.

Burton's Pilgrimage - p. 104

"The masculation of the Palm"

"January & February are the time for the

manipulation of the palm. The 'Nakekwali,' as he is called, opens the female flower, and having inserted the inverted male flowers, binds them together: this operation is performed in Egypt upon each cluster. He is close { ^{misage} medicinal. This is 246

"It is said that beads are worn decorated by the misage, and this, as far as my experience goes, is correct. May not the reason be that most of them know the vicinity of water rather by smell than by sight?" This is 315.

Facts from Beverly, Virginia

Speaks of a very large kind of grape which has "a rank taste when ripe, resembling the smell of a fox, from whence they are called Fox Grapes." 116

"There are also in the plains, and rich low grounds of the fishes, abundance of hops which yield their product without any labor of the husbandman," 120

"The Jamestown weed - - - This being an early plant, was gathered very young for a boiled salad, & some of the soldiers eat it to quell the rebellion of Bacon; and some of them ate plantings of it, the effect of which was a very pleasant comedy; for they turned natural fools upon it for several

days: One would blow up a feather in the air; another would dash streams at it with much fury; and another stark naked was sitting up in a corner like a monkey, grinning & making mows at them; a 4th would fondly kiss & paw his companions, & sneer in their faces, with a countenance more artful, than any in a Dutch droll. In this frantic condition they were confined, lest they should in their folly destroy themselves; though it was observed that all their actions were full of innocence & good nature. Indeed they were not very clearly; for they would have wallowed in their own excrements, if they had not been prevented. A thousand such simple tricks they played, & after 11 days, returned to themselves again, not remembering anything that had passed." h 120

128 In the Spring of the year, hornings come up in such abundance into their brooks and ponds, to spawn, that it is almost impossible to ride through without treading on them. Thus do these poor creatures expose their own lives to some hazard, out of their care to find a more convenient reception for their young, which are not yet alive."

Adds that at that season "the Freshes of the
rivers & - - - - - strike of fish."

"The Lampreys" fasten themselves to the shad, as
the remove of Impurities is said to the shad
of Tiburone."

"The shads at their first coming up are fat¹²⁹
& fleshy; but they waste so extremely in milt^{ing}
& spawning, that at their going down they are
poor, and seem fuller of bones, only because they
have less flesh. It is upon this account, I sup-
pose, that those of the stream, which in Glou-
cester they call Twarts, are said at first
to want those intermuscular bones, which
afterwards they abound with. These are
those fine bones, I may add, of which people
complain so much - & to dispose of which one
is said to have invented a sort of roasting comb -
which thrusts all the bones of the shad -
while the clear muscle passed down the
throat."

^{This & all the plates the same in the Edition of 1705 London}
In the Tab. I. which represent the Duclans,

bearing of fire-light - are seen bald eagles
pursuing fish hawks above the water - one of
which has just drop'd its prey - This part
was ~~partly~~ added to Wright & Beverly - B. says

"In that are you see a fishing-hawk
flying away with a fish, and a bald-
flying eagle pursuing, to take it from him; The
bald eagle has always his head & tail
white, and they carry such a likeness with them,
that the whole thereof may be discerned
as far as you can see the shape of"

The bird; and seems as if it were without feathers, and thence it has its name bald-eagle." He often uttered this:

- 133 "I have often observed the path of these hovers over the water, and rest upon the wing some minutes together, without the least change of place, and then from a vast height dart directly into the water, and there plunge down for the space of half a minute, or more, and at last bring up with him a fish, which he could hardly rise with; then, having got upon the wing again, he would shake himself so powerfully, that he threw the water like a mist about him; afterwards, away he'd fly to the woods with his game, if he were not overlooked by the bald-eagle, and robbed by the way, which very frequently happens. For the bald eagle no sooner perceives a hawk that has taken his prey, but he immediately pursues, and strives to get above him in the air, which if he can once attain, the hawk for fear of being torn by him, lets the fish drop, & so by the loss of his dinner compounds for his own safety. The poor fish is no sooner loosed from the hawk's talons, but the eagle shoots himself, with wonderful swiftness after it, and catches it in the air, leaving all further pursuit of the hawk, which has no other remedy, but to go and fish for another."

#

"Walking one with a gentleman in an orchard
 of the river side, early in the spring, before the
 fish were yet perceived to appear in shoal water,
 or near the shores; and before any had been caught
 by the people; we heard a great noise in the
 air just over our heads, and looking up, we saw
 an eagle in close pursuit of a hawk, that had
 a great fish in his pounces. The hawk was
 as low as the apple trees, before he would let
 go his fish, thinking to cover the wood, which
 was just by, where the eagles dare never follow,
 for fear of losing themselves. But with-
 out standing the fish was dropt so low, &
 thought it did not fall above 30 yards
 from us, yet we, with our hollowing, run-
 ning, & casting up our hats, could hardly
 save the fish from the eagle, and if it had
 been let go 2 yards higher, he would have
 got it. But we at last took possession of
 it alive, carried it home, and had it
 baked forthwith. It served 5 of us very
 plentifully for a breakfast, and some to
 the servants. This fish was a rock near
 2 foot long, very fat, and a great rarity
 for the time of year, as well as for
 the manner of its being taken."

"These fishing hawks, in more plentiful
 seasons, will catch a fish, and later about
 with it in the air, on purpose to throw it
 down with an eagle, and when he does
 not happen soon enough, the hawk
 will make a rana, noise, and instantly

defy him. This has been frequently seen, by persons who have observed their fishing."

135 "All these creatures [including
beams, hawthorns &c.] ever fly from the face
of man."

258 Describing the climate of Virginia
says the settlers "ears are resonated with
the perpetual murmur of brooks, and the
thorough base which the wind plays, when
it-cavertous through the trees;—

—"The mock-birds, who love society so well,
that often when they see mankind, they will
perch upon a twig very near them, and sing
the sweetest wild airs in the world.

But what is most remarkable in these
melodious animals, if they see a man
taken notice of them, they will frequently
fly at small distances, warbling out
their notes from perch to perch, be it house
or tree environment, and sometimes too fly
up, & light on the same again, and
by their music, make a man for-
get the fatigues of his mind."

260 Measured a bull-frog & large "then
when I extended its leg, I found the
distance betwixt them, the 17 inches &
an half."

262 I think at length the charming of a
hare & a rattle-snake which he witnessed
& says the one "upon the faith of a Christian"
At last "the snake moved out of his coil,

and slid gently & smoothly on towards the base, [which lay in a dead] in colors at that instant being 10 times more glorious & shining than at other times."

He opened the mouth of a rattle-snake which he had captured - & some drops of its venom were sprinkled on a carpenter's shirt sleeve that stood by. "and tho' nothing could then be seen got up on the shirt, yet in washing there appeared 5 green specks, which every washing appeared plainer & plainer, and lasted so long as the shirt did, which the carpenter told me was about 3 years after." 266

Beavers

"have over them a Superintendent which the Indians call Pericu." When they have felled & cut up trees - "The Pericu orders several of his subjects to join together, and take up one of those logs, which they must carry to their house & so on. He watches in state by them all the while, & sees that every one bears his equal share of the burden." &c

"Some times they build their houses in a broad marsh where the tide ebbs & flows, & then they make no dam at all." When present with the demolishing of a house - that was "fortified with logs that were 6 foot long, & 10 inches through, and had been carried at least 150 years."

Peaches so civilized "that some good hands plant great orchards of them purposely for their food."

Edible Birds-nests

Gibbon - who was imprisoned at Britania
 speaks of the celebrated "lawcet" & its nest
 "made of the sticky gum rough in clefts of
 storm washed coral, dissolved & wrought
 in the throat," --

Facts from Holton New Granada.

85 "Generally in all parts of the Magdalena,
 one bank is deep & the other shallow."

319 "I found a hawk whose a cow was eating
 clay, apparently pure & white & of a
 saline taste. The hawk had been eaten
 quite away."

457 "Besides the Mikania Guaco, which
 I have seen seen the flower, and Aristolochia
 arguicida, also called guaco,
 there are many other plants that have the
 same name & the same reputation. All
 have a bit of cotton in the leaf, as has
 the rattlesnake-leaf of the States - *Euphorbia*
pubescens."

460 "I saw a great *Felis concolor* which
 seemed little inferior in strength to the
 African nameake. The tiger (*Felis onca*,
jaguar, *once*, *catonount*, -- if, indeed,
 these animals are the same all over the
 continent) is weaker, more agile, & more
 cruel, as is generally supposed."

Humming Bird -

The ruby-throated an "insect-eater" eating small flies. Mayne Rail Boy Hunter p. 93.

The Cougar

"The scream of the cougar, like the roar of the lion, seems to come from any or every side. It is difficult to tell in what direction the animal is who utters it." Hunt p. 203

"Antelopes

differ but little from deer. The latter want (253) the gall-bladder, which all antelopes have. The deer's horns are composed of a solid, bony substance, which differs from true horn. The horns of the antelope are more like those of a goat." etc

The Eagle

Rienne Salem - Superior of the
 Jesuit Missions in N. Am. writes from
 Quebec in 1648 p. 151 "This is not long
 since one of these great birds [the
 eagle] pounced upon a boy 9 years
 old, he put on his shoulder, and
 with the talons of the other took
 him by the opposite ear. This poor
 child began to cry, & his little brother
 aged 3 years old, holding a stick
 in his hand, tried to strike the eagle;
 but he did not stir. Perhaps that
 prevented his applying his beak to the
 eyes & face of this child, & gave lei-
 sure for his father to come to his
 assistance. This bird hearing the voice
 of human voices, appeared a little
 startled, but he did not quit his
 hold; it was necessary for the father
 who had run up to break his thighs,
 & as fortunately he had a knife in
 his hand, at the same time that
 the eagle feeling himself wounded
 wished to rise, they cut off his head.
 The savages say that eagles & vultures
 often cast themselves upon men, that
 they sometimes carry off heavens &
 sturgeons heavier than sheep" - but
 he doubts it.

Mapping Turtle

The same goes on to say p 153 that
 "A Frenchman having caught a rather
 large one [turtle - evidently snap. tort.] which he
 thought he had beaten to death, tied with
 a cord by the tail throwing it over his back,
 this animal which is quite tenacious of
 life, recovering from the numbness (and
 immobility) which the blow on his head
 had given him, seizes his enemy by the
 back with his little beak, & so struggles
 that he made him cry aloud. He lets
 go the cord & lets the turtle fall, point
 de nouvelle, it remains hanging by the
 beak pinching more & more, without ever
 letting go his hold (demordre). Finally it was
 necessary to cut off his head to appease his
 anger."

Goose Skin Oil

"It is the sovereignest thing in the world to pre-
 vent rust, especially the rust arising from sea-
 air; I learned the use of it from observing
 that the gunners at Barnegat, Egg Har-
 bor, &c., constantly, when out on the bay,
 keep a piece of goose skin in the pocket of
 their sea-jacket, and therewith wipe from
 time to time, with the fleshy or fatty side,
 the metallic parts of their powder-pieces."

Frank Forester's Manual for Young Sportsmen
 N.Y. 1858

Young snipe

Thayer has never seen a nest of young snipe - "but in July cock-shooting [i.e. when shooting woodcock] in Orange County, I have more than once shot young birds [of snipe] of the season, with the pin feathers not yet fully grown, which must have been bred on the ground." p 248. *Field*

Their flight & drumming -

"In wild windy weather, particularly on their first coming, and when the season is uncertain with interrupted nights and hail showers, snipe often rise in whisks, as it is termed, or little knots of 10 or 20 birds, when they invariably fly wild & high, & often leave the ground entirely, soaring up & going away directly out of sight."

"At a later period, when the weather is hot, & when the breeding season is at hand, the birds have a trick of rising perpendicularly into the air, & then letting themselves drop a hundred feet plumb down through the air, with the joints of their wings set edgewise, making a strange sound, which our ears cannot be mistaken, and is known as drumming." p 248.

"There is one peculiarity in the snipe, that it invariably rises up wind, and goes away

"as nearly up wind as possible," so you must best
for them accordingly. p 253 This.

Flight of Woodcock

"Summer woodcock almost invariably fly straight
rising gradually till they have topped the
bushes, if in close cover, and then go away
nearly in a horizontal line, until they
chose to alight. Their method of doing this
is peculiar; they never gradually decline, lowering
a lowering their flight as they near the earth,
like the quail, nor pitch down at an acute
angle from their original line of flight like
the snipe; but invariably make a short,
quick zigzag turn to right or left, and
then dash downward in an instant, and
run off swiftly 5 or 6 yards, before they
settle either to feeding or to lie up." p 290 This.

Widgeon & Green winged Teal.

"Within the last few years the English widgeon,
and the English green-winged teal, anas penelope,
and anas crecca, both of which are distinct
varieties from the American kinds, distinguish-
able by small though plain & invariable
marks, are becoming popular among us,
working their way, as it would seem from the
north-east south-westward," — p 335 This

The discovery of this widgeon was made by J. N. Lawrence & is mentioned by Giraud. The Eng. Green winged
Teal was first discovered here by Foster himself.

though known before in Nova Scotia p. 336
 V. with of the Bridgman & Seal.

Cougar

Speaks of cougar killed in Western Texas -
 the largest known in a particular settlement
 7 feet long tip to tip "a weighing by estimation, 250 lb."
 Hunted in Texas, journey p. 198

Fire on the Prairie

"we reflected on the immense destruction of
 - which life that such fire must occasion, -
 - The fear of the damage it might do
 the settlers" said the Dr [his brother] "did
 not make me feel the culpability of
 starting the fire, nearly as much as seeing
 the ants crowding away from it on to
 the stones in the edge of the water,
 when we had carried it [conducted the fire]
 down to the creek, afterwards, when I noticed
 the tumultuous excitement of a wren, that
 probably had a nest in the bushes." p. 221
 Phil.

We saw a prairie fire progress a mile & de-
 part in 15 minutes. p. 261

Rattle snake

"Woodland [his Texas guide] told us that
 they hid themselves into the wet grass, and it
 was for that reason we saw them so
 much on the edge of the dry road, while
 the dew stood on the leaves in the morning.
 In grassy land, at this time of day, they were

generally hanging in bushes; This we also observed."
 a short ac. got charming a bird seen that p. 309
 & a Texan snake.

Mesquit Roots

On the barren table-land called the Staked Plain
 in Western Texas Capt. Pope who was employed
 there for water & see if a R.R. to the Pacific
 could cross them - "reports a novel source of
 fuel in the roots of the mesquit, which are
 found preserved beneath the soil, blackish
 round & hard, extending, sometimes, to the incredi-
 ble depth of 70 feet." That p. 450

The Zones

In the first part of Mordant's N. Eng. Laman
 - saying "That N.E. is one of the most habitable
 parts of the globe - "This torrid zone is good
 for grass hoppers; & a zone temperate
 for the ant & bee. But frigid zone
 good for neither as & lamentable ex-
 perience of Capt. Davis' fate is mani-
 fest, who in his quest of the north-
 west passage for the east India trade
 was frozen to death."

A "Subaqueous Wall"

W. describes a common kind of raft on
 the sea when there is a violent wind
 against the stream. "We bound & lashed
 trees together in a row, and by attaching
 stones to them, suspended them above sea

fathom under water, their tops being downward, & their roots attached by cords to the fore part of the vessel." -
 - The "undercurrent", where this wind had no influence, acted on this as a "sub-aqueous sail". Wrangell's Exped. p. 27

The Harours at the North -

At Nishne Kolyma in the Kolyma, in about $69^{\circ}N$ "Spring the effect of recognition in that period when the sun is first visible at noon, though at this verbal season the thermometer is often -35° during the nights; and autumn the ice from the first freezing of the river, which is early in September, when the temperature is frequently -44° ." Ibid

How Frost

The frost formed on snow after melting in the sun & then freezing is called "nast" in that neighborhood. Ibid p. 71

Box trap

"The Russian inhabitants of Nishne Kolyma have above 7500 such traps [our common box trap] along

The banks of the river [Kolyma] on the
eastern side in the western Tundra.
Sept 78

Snow Bridges & Waves

Riding on sledges over the snow covered ice
ice (& discover land N. of the coast) he
says "We were guided by the wave-like
ridges of snow (sastrugi) which are
formed both on land & on the level
ice of the sea, by any wind of long con-
tinuance. These ridges always indicate
the quarter from which the prevailing
winds blow." The inhabitants are often
guided several hundred miles thus.
When an irregular wind has altered
produced different ridges - they even correct
their course by digging down to the old ones.
Sept p 141

Bone fuel
At one place on the coast near there
among the Tschuktschi - driftwood being
scarce, the usual cooking fire is
made of bones, which have been
soaked in their oil. Sept p 281

Intense cold
In the coldest weather the reindeer stand
motionless in the forest, or crowded together
in the Tundra - "Only the dark
bird of winter, the raven, still clears the icy
air with slow & heavy wing, leaving behind a long
line of steam vapor, marking the track of his solitary
flight." Sept p. 294

Fach from
 "Wonders of the Earth & the Heavens"
 By Thomas Milner -

Boston - '55 (Accomplished)

Local Notes

p 118 "An occasional log drifts to their shores, and a few of the more isolated atolls, where the natives are ignorant of any land but the spot they inhabit, they are deemed divine gifts from a propitiated deity." - - - - -
 "How many of the various arts of civilized life could exist in a land where shells are the only cutting instruments - the plants in all but 29 in number - but a single mineral - graduated none, with the exception of foreign mice - fresh water barely enough for household purposes - no streams, nor mountains, nor hills? How much of the poetry or literature of Europe would be intelligible to persons whose ideas had expanded only to the limits of a coral island - who had never conceived of a surface of land above half a mile in breadth - of a slope higher than a beach - of a chance

of seasons beyond a variation in the prevalence of rains."

"The summit of Mauna-Loa, p. 128

in the Sandwich Islands, has been seen, at a period when it was destitute of snow, skirting the horizon from the distance of 183 miles. This is the most remarkable example yet known of the visibility of high land;—

Elevated Snow Plains & Names 136-7

Above the snow line there is "no rain" and "no snow falls, but in the form of flakes, but in that of very minute globules." 137

- 136 - "The snow of these high regions consists . . . of small round balls, resembling small shot. . . . it is impossible to press it together so as to make a snow-ball. The German peasants in Switzerland have well observed this difference, and express it in their language, calling the mountain snow firn, in contradistinction to snow." Can be no avalanche from this.

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London Arboretum & Ed. 1844

Vol. 1st p. 30 -

His list of the Native Trees & Shrubs of the
British Isles "amounts to 71 genera
& about 200 species" -

p. 126 - "The total number of foreign
trees & shrubs introduced up to the
year 1830, appears to be about
1300; or, probably, up to the present
moment, including all those species
which have not yet flowered, and,
consequently, have not yet been recorded in
books, about 1400."

p. 26 "Our principal fruit trees are
from Asia, including the common walnut,
which is both a fruit & a timber tree; but
by far the finest & ornamental trees &
shrubs are from North America."

141 "In the part of the world [the East]
[André] Michaux remained 2 years, traversing
mountains & deserts from the Indian to the
Caspian Sea, proving that the provinces
situated between 35° & 45° of latitude in the
east have supplied most of our trees, ex-
clusive of those which belong to America.
He here verified the fact, first noticed by
Kaempfer, that the male flowers of the date
will keep during the year, & yet impregnate

Mr. female."

For an interesting notice of the distribution
 of our trees in a part of the U.S. & Canada -
 as observed by a British traveller, Robert Brown
 & James Macnab - in 1834 - v. "The
Quarterly Journal of Agriculture vol. V. N. 596,
 & "the 12th vol. of the Gardener's Magazine"

Vol. 2 ~

"This tree [*Robinia pseudo-acacia*] is 1623
 injurious to any other plant growing under
 its drip, from a singularity in the habit
 of its pinnated leaves; the leaflets of which
 fold over each other in wet weather,
 leaving the tree apparently stripped of
 half its foliage."

Cornus Florida near the banks of the Alabama 1018
 River - Another Bartram's branch "We
 were entered a remarkable grove of dog wood
 trees (*Cornus Florida*) which continued 9 or 10 miles
 unbroken, except here & there by a towering
Magnolia grandiflora. The land on which
 they stand is an exact level; the surface
 a shallow loose black mould on a stratum
 of stiff yellowish clay. These trees were about
 12 feet high, spreading horizontally, and
 their limbs meeting, and interlocking with
 each other, formed one vast, shady,
 cool grove, so dense & humid as to exclude
 the sunbeams, and prevent the intrusion
 of almost every other vegetable; appearing

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as a most desirable shelter from the
fervid sunbeams & winds. This 'admir-
able grove, & many specimens, has acquired
the name of the Day Woods. During a
progress of nearly 70 miles through this
high forest, there was constantly pre-
sented to view, on one hand or the other,
spacious groves of the fine flowering tree,
which must in the spring season, when
covered with blossoms, exhibit a most pleasing
scene; - &c &c

1085 The common Ling or Heather (*Calluna
vulgaris*) "abundant in almost every
part of Europe, more especially in the
northern countries. It is found in Ire-
land, Greenland, & Kamtschatka, and
in Nova Scotia & Newfoundland."

1125 *Gaultheria Procumbens* - "The leaves, if proper-
ly cured, make a most excellent tea;
for which reason it is likewise known
by the name of mountain tea."

Except in the indigenous berries
of Great Britain.

Rubus

R. ruberectus - "Found

in Britain, in moist woods, & by the sides
of rivulets, chiefly in the northern counties"
Perennial stems - nearly upright 3 or 4 ft

high. "The fruit consists of rather a small number of dark red, or blood-colored, aggregate grains, said to be agreeably acid, with some flavor of the raspberry; whence it has been recommended by some as perhaps not unworthy of cultivation."

avar.?) R. Affinis The Related Bramble - (Described in 'pine fruit' - "a native" - - - - of Britain in boggy places" - no mention of fruit)

var? R. Fissus ^(characteristic fruit) Dr. Kuntz was acquainted with only one specimen sent from Yorkshire - no mention of fruit.

"R. Idaeus L. The Mount Ida Bramble, or Common Raspberry" - - - "The Raspberry called in Greek Batos Idaia; in Latin, Rubus Idaeus of the mountain Ida, in which it grows." in English, Raspberry, Framboise, and Huckle-berry. (Johns. Ger. p. 1274) - "the native of Europe, & probably of Asia Africa, & America." ! But he is certainly in error in America.

R. Coccineus - "in all probability, only a variety of the common bramble;" -

R. Caesius "The Gray Bramble or Elderberry" trailing - fruit sweet - colored grayish. "It is a native of Europe & the north-west of Asia, in woods & hedges. By some it has been proposed to be cultivated on account of its fruit."

Also what we regard as 2 vars

vars R. hirtus (characteristic & idiosyncratic) & R. fruticosus

R. longifolius "A native of Europe, especially in the southern parts. Frequent in Britain, in hedges & thickets." - "The leaves large, stems are long & trailing." - "The berry is large, agreeably acid." Includes some related species or varieties.

"R. Fruticosus L. The thorny Bramble, or common Blackberry" stem erect. "Fruit so-purplish black. A native of Europe in hedges & thickets, & woods. In Britain abounding in the Agricultural zone, and tolerably frequent in the upland zone." The berry has "a sweet but rawish flavor." ripe early in Sep. "more common than any of the other brambles" & larger. "The fruits, in some parts of England, are called bumblekites; and in others scaldberries, from their supposed quality of giving scald heads to children. They are considered astringent; but have been eaten by children, in every country where they grow wild, since the time of Pliny. - - In England, they are sometimes made into tarts;"

The R. Idaeus seems to be the only species commonly used - & that as a cultivated berry.

Amelanchier They have come in indigenous.

One A. Botryopium cultivated here is called Mr. Aronia Botryopium - The Canadian medlar, Snowy Mespilus, June Berry - Wild Pear tree; Alnus de Choisy;

Amelanchier de Choisy, Ancien à Grappes Fr;
Tranckenbirne, Ger." &c. The word "exhibits a dif-
 ference between the fruit & the leaf."

Ribes — "*R. Grossularia* L. The Common Gooseberry"
 extensively used - naturalized - but doubtful if
 aboriginal. "There can be little doubt of its
 being indigenous in North America, where it is
 known by several under various names. Among
 other localities, we may cite as one the rocks
 about the falls of Niagara, whence branches
 & ripe fruit have been sent to us."

Of our *R. laurum* - says "The fruit is
 about the size of black currants, in pendu-
 lous racemes, purplish black, shining, clothed
 with hairs, unpleasant to the taste."

R. Rubrum Here where "found in
 mountainous woods, especially in the north of
 England and in Scotland, about the banks
 of rivers; undoubtedly wild on the banks
 of the Tees; -"

R. Alpinum "found in Britain in woods,
 both in England & Scotland". It rare - does not
 denote quality of fruit.

R. Petraeum found in one or 2 places in England
 value of fruit not described.

R. spicatum "The Spike-flowered Red or Tree Currant"
 native of the N of Eng. fruit resembling *R. rubrum*

R. nigrum growing wild - but prob. not
 truly indigenous "used for use therapeutical
 rarely for food."

Vaccinium

"*V. myrtillus* & the little myrtle-like bilberry, or common bilberry, or blueberry."

"A shrub from 6 in. to 2 ft high; a native of heaths, stony moors, & mountain woods, throughout most parts of Europe, especially the more northern countries; and also in the north of Africa & Asia; and at Nootka Sound and Nova Scotia in America. This plentiful in Britain & Ireland, and also in Iceland. . . . It is found in every country (?) in Britain, from Cornwall to Caithness, least frequently in the south-eastern countries, and increases in quantity as we advance northward. This is one of the species, Mr Watson describes, that, if allowed, would overrun Britain, and form, with *Calluna vulgaris* & *Empetrum nigrum*, much of the natural physiognomical character of the vegetation?" . . . "The berries of this species are of a bluish black, about the size of a pea, and covered with a mealy bloom: they are eaten in tart or with cream, or made into a jelly for the northern & western countries of England & Scotland, and, in other parts of the country, they are made into pies & puddings."

V. uliginosum "Some large juicy
also rather high on mts

black & covered with a mealy bloom - ... A
 shrub, about 2 feet high; a native of Russia,
 Germany, Siberia, Switzerland, Savoy, Rus-
 land, the north of England; as well as
 - in the more northern parts of America." etc
 - is a Scotland high in note. "The berries are
 agreeable, but inferior in flavor to those of
 V. myrtillus; eaten in large quantities they
 occasion sickness, & a slight headache."

V. vitis-idaea Plentiful in Scotland,
 Westmoreland, Derbyshire, & Wales. - "The berries
 are scarcely to be eaten raw: but they are
 made into pies in Derbyshire; and, in Sweden,
 a rob, or jelly, is made from them, which is
 eaten with all kinds of roast meat, and
 is considered preferable to red currant jelly
 as a sauce for venison. - - - The berries
 of this plant form an important article
 of commerce in the sea ports bordering the
 Gulf of Bothnia, whence they are sent
 to the south of Europe along with Cranberries."

(He gives the same name)

London describes 32 species of
Vaccinium - & all ~~known~~ & ~~of~~ the
 above 3 & 13 more are referred to N. America
 The other 3 are V. Arctostaphylos (from Black Sea)
 along
 V. Parifolia in Madeira & another V. for Canaries

Arctostaphylos Both kinds in England.

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Oxycoccus, *O. Palustris*. "The Marsh or Common Cranberry".

"Mossberries, Moorberries, Fenberries, marshmorts, or Whortleberries, Cornberries, Eng.;"

"The name of Cranberry is supposed to be given from the tubercles of the flowers being worked at the top, and before the expansion of the flowers, resembling the head & neck of a crane (Smith & Withering); or because they are much eaten by cranes." "Berries pear-shaped, globular, stem dotted, crimson, of a peculiar flavor, with a strong acidity, grateful (Doris Hill...)" "It is a native of turfy mossy bogs in the mountainous parts of Europe; common in Netherland, Russia, Scotland, Ireland & the north of England, as well as in the east" - i.e. of Eng. - & in America.

In Russia "The berries remain during the whole winter under the snow; and are collected in spring after it is thawed & gone, as well as in autumn before it falls. In the north of Europe, as well as in Britain, cranberries have been in use from time immemorial, for supplying an acid drink during the hot summer months, for tarts, and other purposes." Now in Eng. nearly exterminated. - & we depend - Russia & Sweden and the *O. vac.* from N. Am. "The Russian Cranberries are considered the superior in quality to those of America."

"In Russia, & in some parts of Sweden, the long filiform shoot of the *Oxycoccus* are

collected in spring, after most of the leaves
have dropped off, and are tied & twisted
into ropes, which are used to tie on the
thatch of houses & even for harnessing horses."

VOL IV

"Linnaeus state that the catkins, when boiled, 2057
will throw up a steam like wax." i.e. of the

Myrica Gale *Le v. p. 111. 6/10/1897* 2119
I Quercus when the trees

(*P. sylvestris*) are finally declined & the new-
shoots they are struck with on one, "and
the sound arising from the strokes they judge
of the soundness of the tree. The trees rejected,
which are called brake, are in the proportion
of 1 in 10."

"The yellow deal of Europe, which is 2123
produced by the *Pinus sylvestris*; the white deal
of Norway, which is produced by the *abies* species;
and the white pine wood of America, which
is the *Pinus strobus*, are used throughout
the civilized world in building & fitting up
houses &c &c"

I call "worm fence" what I call Virginia

fence -  v. plate 12 123

The pines of U.S. exported are 6 millions
are *P. mitis* (the yellow) *P. strobus* - & *P.*
harvestalis (the long leaved). The last 2 kinds
- the longest one is the 2nd - but the first
is the most generally used. h 2118

26 lb. As might be expected, the seed keeps longest when the wings are left on. -
It retains its vigour after the 2^d year.
..... covered very slightly, perhaps from 1/16 to 1/4 of an inch. - In France & Germany, forests of wild pine [*P. sylvestris*] are frequently raised & sown the seed where the plants are finally to remain; in which case an acre, when the soil & situation are favorable, will require 14 lb of seeds with the wings on, and 11 lb without the wings; and, when the soil & situation are unfavourable, 16 lb. with the wings, & 12 lb without them. If the seeds are sown in rows, half the quantity will suffice in both cases. " You may be of course to begin of may.

Consider the *P. sylvestris* - "by far the most valuable timber tree of the genus in Britain, & even in Europe." 2184

In perhaps Bremonville a planting of pine (*P. pinaster*) in the sands of France. 2219

Conrotata - "The joints are so hard, that they are said to have been used by the ancients as shot." 2596

VOL 3^d

Buxus sempervirens The evergreen a common Buxus "is the only European wood that will sink in water." 1335

350

1445 *Coryla Tomentosa*. "The kernel . . . is difficult to extract, because of the strong partitions which divide it, and to have given rise to the name of *mocher nut*."

Willows

1456 "The species indigenous to N. Am. are not very numerous; but Pursh has described 37 sorts, as either wild or in a state of cultivation there. The number of species in different countries, however, cannot at present be determined with any thing like accuracy, since what are considered as species by some botanists are looked upon as only varieties by others. Thus Schleicher finds 119 species within the narrow limit of Switzerland; Host 60 species natives of Austria; and Smith, and other British botanists, 71 species indigenous to Britain. Koch, however, the latest, and as it appears best, the most judicious, writer on the genus *Salix*, considers that all the alleged species, natives of Europe, may be reduced to 48. Perhaps, in addition to these, there may be a dozen natives of North America, which are not natives of Europe; and half that number natives of Asia. Of 182 species described by botanists, Koch observes, 'only are extra-European.' - 'adding to these Schleicher's 119 new species, the total number is 254!'"

"In 1829, His Grace the Duke of Bedford had ¹⁴⁵⁷
 printed for private circulation the Salicium Woburn
case, in which 160 species are figured & described;
 all of which, with the exception of a very few, were
 at that time alive in the salicium at Woburn."

This with the "English Botany" gave the Eng. botanist
 an advantage over all others.

In N. Am. Pursh was Pursh aided by Anderson
 was the authority in 1814 - but still added some -
 "Since then Dr Barrett of Middletown Connecticut, has
 undertaken to describe all the willows grown in Amer-
 ica, whether indigenous or exotic, amounting to
 100, a compendium of which he has sent to Sir W.
 G. Hooker, arranged in 9 groups, chiefly the
 same as those of Mr. Borner. "Cutting" &
 most of them were sent to Woburn. For particulars
 v. "Companion to the Bot. Mag vol 1. p. 17"

"The next greatest number of sets [of the ¹⁴⁵⁸
Woburn collection] is in the arboretum of
 Messrs. Goldie, at Hackney."

"Since the time of Sir J. E. Smith, the ¹⁴⁸⁵
 principal British students of Willows are Mr. Borner;

"The great master in the genus Salix ¹⁴⁸⁶
 may be considered Professor Koch "His small
 work appeared in 1828 - but Borner has ¹⁴⁸⁹
 championed the willows for London."

Birch

under B. alba - "In the mine of Sworobzko, in ¹⁶⁹⁹
 Siberia, a piece of birch wood was found changed
 into stone; while the epidermis of the

bark, of a shining whiteness, and shining, was exactly in its natural state, perfectly well preserved, and without being colored by the iron." Related in the Nouveau Du Hamel

but see his words - - - "The buds & leaves, in early spring, abound in a resinous matter, an aromatic agreeable fragrance from which may be perceived at a considerable distance from the tree." "The bark is used as coping to walls, and is placed over the masonry of vaults under ground, as lead is in England, to prevent the moisture from the soil from penetrating through it. It is even wrapped round roots and the lower part of posts, and other pieces of wood inserted in the ground, or resting on it, to preserve them from decay." - - -

"The same people, [Laplanters] and also the Russians, make the bark of the smaller trees into boots & shoes; the legs of the boots being taken from trees about the same thickness as the human legs, and consequently, having no seam." Dr Clarke took up his authority - "The sap of the birch is made

with beer, wine & vinegar; and a sugar is extracted, and a pint distilled, from it: 240 bottles of sap give 6 lb. of syrup, which is used in Russia in that state as sugar, without being crystallized" - - - also see Penny Cyclo. art Betula vol 18 p 348 - I think it is now to make Bricks

Wine - "It has been observed that the sap flows in greatest abundance about noon. When the wine is made the sap should be boiled with moist sugar or honey, in the proportion of 4 lb. of sugar & every gallon of liquor. While boiling the scum is taken off as fast as it rises, till the liquor is quite clear. It is then worked with yeast in the usual way."

Wine but in the juice & not of an orange - it has an strong of sweet briar - & the flavor is - "The wine should be kept 3 months before it is bottled, and 12 months before it is drunk. Brick wine has an agreeable flavor, and is considered very wholesome."

Under B. lenta - "Hunter, in his 'Notes' 1914 & Evelyn's 'Mythen' Vol 1 p. 219, says that the sap of this tree is used by the inhabitants of Kamtschatka without previous fermentation;"

Acorns
"Very few acorns, of any species, will germinate after having been kept a year." 1918

Vol 4 p 209 "The pollen from the anthers I must mention [of Abies] when it is, both on the lower branches in great abundance, & to change the color from green to yellow; and both in the highlands of Scotland, according to Lightfoot; and in the Vosges, in the north-east of France, according to Loiseleur Deslongchamps, it has been carried to a distance of wind, and has fallen on the ground like a shower of sulphur, to the great terror of the population."

2nd 2nd M.

Pacific R.R. reports

- 28 In Beechwith's Report of 4th - in '53 & 4
 Mr. Grutzfeldt found that the skin
 of a snake of 4 ft in length, which it had
 cast, showing the eye & every scale perfect.
- 119 In Toney & Gray's Rep. on the plants
 found by Eminson & Beechwith in '53 & 4
 "Aquilegia canadensis" near the Sierra
 Nevada. "Few phanerogamous plants
 of this country have so great a geograph-
 ical range as this species. . . .
 from Hudson's Bay to Florida & New Mexico,
 and from Alaska to California."
- Freemove virginiana* Kansas Tex-
Trichostema cornuti " "
Ceanothus americanus - Arkansas River
Epilobium angustifolium "Common in the
 Rocky mts."
Lysimachia ciliata Arkansas River
Asclepias tuberosa " "
Apolonium cannabinum " "
Monarda fistulosa valleys of the Rocky mts
Sagittaria variabilis Upper Arkansas
Scirpus lacustris Bluff Creek
Pteris aquilina near Nevada
- For some of the plants collected in Popes' Ex.
Salix minor on the Grand Etovado
Prunella near Fort Washita
Tephrosia virginiana Western Texas
Lepidoptera sturci near Fort Washita
Geum virginianum L. Western Texas
Galium aparine on the Colorado

Phytolacca decandra } Near Fort Washita
Solidago canadensis }
Liriodendron canadense } Llano Estacado &c
Achillea tuberosa } Near Texas
Rumex acetosella } "
Panicum pennsylvanicum } On Pecos
Morus rubra } Near Fort Washita
Lonicera virginiana } Near water of the Colorado
Sisyrinchium bermudeana } Llano Estacado
Scirpus lacustris } "
Adiantum Cap. var. } Colorado

Distance measured by Echo -

"As sound moves at the rate of 1090 feet in a second, and as the sound which returns to the person who emits it has travelled over a space equal to twice his distance from the reflecting surface, the distance in feet of the body, which occasions the echo may be readily found by multiplying 545 by the number of seconds which elapse between the emission of the sound and its return in the form of an echo." Brewster's 'Natural Magic' - p 203

Boys of Kamtschatka

"The whelps are trained to their business, by being let out alone with light leather thongs, which are made to stretch, leaving them virtually placed at a proper distance out of their reach; so that, by constantly pulling & slowing, in order to come within food. They acquire with the strength of limbs & the habit of braving, that are necessary for the future destination."

Cook's Voyages - vol 7
p. 315. Cap. King's Journal

Climate of Kamtschatka

see under of St Peter & St Paul.

"This extraordinary rigor of climate in so low a latitude, may be accounted for, from its being situated to the east of an immense uncultivated track of country, & from the prevalence of the westerly winds, blowing over an extensive cold & continents."

Phil Hist p. 302

Roraceae & Labiatae

Hugh Miller - in his "Testimony of the Rocks"
 1878 & 79 - speaks of Agave as having con-
 cluded that in Miller's work, "the other
 of the Roraceae" - - - was introduced only a short
 time previous to the appearance of man. And
 the true grasses - - - have appear in the
 same state at all. To this Miller adds
 the family of the Labiatae. As well found
 in a fossil state - "all plants of gray re-
 now", as I have been happily remarks,

Some of the authorities referred to in Brit.
& Fauna's Quadrupeds - which I may wish
to examine -

Pennant's Arc. Zool. also Brit. Quad.

Rapine's ⁱⁿ Ann. Month. Mag.

Desmarest. Mamm.

Linnaeus Syst. Nat.

Buffon Brit. Nat

Gifford's Curior

Pallas's ^{Exotic}

Jett, Linnaean Trans.

Sabine " " & in Franklin's Journal

Ray.

Brisson

Daughton's Cal. Nat. Hist.

Hearnes Journey

Seba

Futler Phil. Trans.

Parrys' 2^d Voyage

Wardens' Hist U.S.

Shaw Gen. Zool.

Gmelin's Syst. Nat.

S & O. Journ. Ac. Nat. Sc. Phil.

" Lewis & Clarke's Exped.

Phil Trans. Lond.

Castelnau's Journal.

Long's Exped.

Tillichmann's Journal.

Trans Zool Soc. Lond.

There are the following
 Papers in 2nd vol. Trans. N.Y. Ethnol. Soc.
 by Gallatin on the "Jargon" & Trade Language
 of Oregon.
 Gregg's 'Commence of the Prairies'
 Travels in the Interior of N.A. by Maximilian
 Prince of Weid, -

Good completed "The Birds of Europe" in '34
 his next more important work was "The Birds
 of Australia". He was engaged on "The Birds of
 Asia" & on Humming Birds.

Brickell's 'Nat. Hist. of North Carolina.'
 said to be an imperfect copy of the original

Philip Henry Gosse's 'The
 Reptiles and Birds of the United States' relating chiefly to the
 animals of the United States.

"Pis. Americana" London 1854 relating chiefly
 to Sea & Land Animals.

"Fenny" A Sea-side Holiday. London '56

Grass Gramineae & Cyperaceae of N.A.
 2 vols. and Memoirs Nat. Hist. Soc. - 1839
 A vol. of mosses (dried) &c. for the Botanical
 by Bonnier 1825

Catesby's Hist of Carolina.

Warren's Fauna Americana

Engelhardt & Barrois' Fauna & Canaries
Berlin 1815.

London.

Gilpin's Forest Menery 2 vols

Lin. Tour in Lapland 2 vols

" " Sweden in it trans.?

2 Lat. Invenitatis Academicæ of Linnæus &
his Principles - Especially Calendarium Floræ
Deliciæ Naturæ - Novæ Plantæ
Tæron - Flora Economica - Vernæ
Arborum. Specifica Canadensis. ^{The Malin} ^{med. of the Indians}

Linnæus' Philosophia Botanica a comment
on each of the aphorisms of his Phil.
Fundamenta.

Charles Linn. Travels in Sweden - in it trans.?

London, Enc. of Agriculture of the County

Synopsis Fungorum by Dr Schweinitz
art of 1831 in Philad. Phil. Trans. 1834

Nat. (Millers Illustration of Linnæus' Botanical

hist. Terms (with plates) 2 vols 8vo.

Lib. Evelyn's Sylva

Tuckermans' Lichen of New Eng. at Germ.

Richard Pridder's Museum Phœbeion

Cabot. - 1831

A Description of Cape Cod - Boston 1831 8vo

J. C. Putney's Discourse at Barnstable 1839 on
the 2^d Cent. Ann. of the Cape Cod

Flora Boreali Americana 2 vols large 4th with
plates 1833 in Lib. Acad.

Barrett's British Birds, same place

U S Exploring Expedition Nat. Hist. Lib.
 Reconnaissance in New Mexico & Texas
 Reports of the Sec. of War 1850

Gifford's work

Contributions to the Phys. Geog. of U.S. by
 Ch. E. Smith Jr. Mex. Smithsonian Institute

Harvey's work on Alps & Spain in same.

Gray's Forest Trees of N. A. in same.

Works on Modern Painters (Ruskin)

Seven Lamp of Architecture "

Mackenzie's Journey thro' America
 (Vocal)

price as the Pictorial 21) vols

In Town Lib. ~~political's~~ ~~Constitution~~
~~White's~~ ~~Deborah~~
 Life of Randolph

~~French~~ ~~Plat~~ ~~Mythology~~
 Thorpe's "Northern Mythology"

At R. W. E. ~~Godman's~~ ~~Rambles~~ ~~as a naturalist~~

John Adams in Town Lib.

"Four 45 vols contain the real account of
 the journey - 'Relation Historique' of Ben.
 Wash."

Vicillotti's Birds

Report on Utah - Senate Doc.

Nat. Hist. N. A. Infra Supplement & Michaux
 3 vols - '53 N. Hist. Lib.

Hovey's Magazine

Dr. Kani's Mollusca of N. Y. with colored plates.

Bemicle v no 18 Dec. 25

Howarth Rural life &c

Milkers' " " "

Noah Webster "On the supposed change in
the temperature of winter."

Backwoods of Canada in Lib. Ent. Knowledge

Gerard's Berhal 1597 Best ed. said 4th 1833.

29 Franklin's report & Ellis' voyage to Hudson's
Bay in "The Goshawk & California" for an account
of a North Am. winter. which is therefore
omitted & given in his "Polar sea"

Mr. Brewster on the Muscles & Symp. Branch of Penn-
sylvanic - British Phil. Trans. vol. 41-43-46
or also 62

" Description of Egypt & Florida

Also see some other books -

V. Correspondence of Brewster & Col. Vinton.

Pliny in Boston's Library.

Thompson's Hist. of Vermont & last edition

Gray's - elegant colored mural maps" pub. in Boston

Carter Allen's Physical Geography 23 maps, 3rd edition

Lyell's report to Dr. Bigelow re of account of our Washington 1858
in Brit. Mus. Geol. V. 5. p. 22.

also to Flies on origin of Brit. Fauna & Flora in Mem. Geol. Soc. London
V. 1. p. 336. 1856

Feb 9th letter from Conn. Hist. Relations. for 33-44
 de Broy -
 John Smith

10. Relations Smith, Ind. & Nat Hist Lib.

From Harvard Nov 28 L. Gilman, Essay on Rec. subjects 1 vol

" Mr. Kern Town "

2. Smith relations 2 vols

from Ind. Hist Lib. 3rd part of Schoolcraft's Indians 1 vol

Michigan. Forest trees. April

Michigan. Quabapella 2nd 23rd vols } Nat. Hist
 } Ind. Lib.

2 days Am. Ind. 1 vol 1884

Letter to Frank Benson

i McGregor, University Station M. C. in Canada

Shoreland 263

